TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN

A THESIS SUBMITTED TO

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT (PUNJAB)

IN THE PARTIAL FULFILLMENT

FOR THE AWARD OF DEGREE OF

DOCTOR OF MEDICINE

IN

Obstetrics & Gynaecology

MAY 2022

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ACKNOWLEDGEMENT

This thesis not only represents my work at the keyboard, it is a milestone in my work of 3 years at this institute. I am highly grateful to the Almighty who gave me this opportunity to thank all those who have helped in successful completion of this work.

With a deep sense of gratitude, I am indebted to esteemed teacher **Dr. Ashima Taneja,** for being so supportive throughout .Her indelible help and fervent interest, with her academic excellence, commitment and readiness gives me great pride in expressing my gratitude towards her.

I wish to convey my heartiest thanks to **Dr. Kanupriya Jain** for being the most helpful support and due to her able mature guidance and ever willing help, made assigned task simpler.

My sincere regards to **Dr. Sunil Juneja**, for motivating and pushing me in academics to do the best **and Dr. Suman Puri** for being a great example and being an inspiration due to her equanimity and support throughout the course.

I would like to thank **Dr. Shweta Gupta** and **Dr. Pooja Tandon** for their constant encouragement and motivation.

My heartiest thanks to **Dr. Kamini Gupta** without her constant efforts, inputs this could not have been possible.

In my daily work, I have been blessed to have friends like **Dr. Kshish Aggarwal**, **Dr. Nikhar**, **Dr. Nikita**, **Dr. Vishal**, **Dr. Prateet**, **Dr. Navita** who stood by me through thick and thin and helped me bear rages against the world with equanimity, like family and whose companionship made me sail through this arduous journey smoothly.

I wish to thank all my seniors who have been constantly motivating, inspiring, sending heartiest wishes and praying for my prosperity always- **Dr. Reetika**, **Dr. Gagan**, **Dr. Muskan**, **Dr. Manpreet** ,**Dr. Divya** , **Dr. Sukriti** , **Dr. Anupriya**

Special mention goes to my juniors **Dr. Amandeep**, **Dr. Heena**, **Dr. Rashim**, **Dr. Mehak, Dr. Shreya, Dr. Divjot** working with them was a pleasure and a blessing too.

I can never forget the timely reminders and wishful messages of Renu ji,who has supported us all immensely throughout this journey.

Words shall be woefully inadequate to express for unfailing attention, love and care by my family –My Mother **Mrs. Pinki Janweja** , My Father **Mr. Amar Janweja,** Sister **Dr. Jyoti**, **Neeru di**, My Bothers-in-law **Dr. Ravish** and **Prateek ji** who have made me whatever I am today.

I would like to extend my sincere gratitude to **Mr. Naveen Bhatia**, Research and development center, for all his patience and guidance from the very beginning. I would like to thank **Mrs. Namita Bansal** , **Mrs. Ankush** and **Mrs. Niharika** for the immense help.

I wish to extend warm regards to the staff and patients for their cooperation. At last, I would like to thank all those who helped me to accomplish this task.

Dr.Gourav Janweja

LIST OF ABBREVIATIONS

SGA	Small For Gestational Age
AGA	Appropriate For Gestational Age
IUGR	Intrauterine Growth Restriction
FGR	Foetal Growth Restriction
SD	Standard Deviation
PPV	Positive Predictive Value
NPV	Negative Predictive Value
NICU	Neonatal Intensive Care Unit
SFH	Symphysio Fundal Height
ANC	Antenatal Care
PAPP	A- Pregnancyassociated Plasma Protein A
BHCG	Beta-Human Chorionic Gonadotropin
MCA	Middle Cerebral Artery
PI	Pulsatality Index
UTA	Uterine Artery
UA	Umblical Artery
AC	Abdominal Circumference
FL	Femur Length
HC	Head Circumference
EFW	Estimated Foetal Weight
GH	Growth Hormone

IGF	Insulin Like Growth Factor
ALS	Acid Labile Subunit
LR	Likelihood Ratio
G D3	Ghr Deletion Of Exon 3 Growth Hormone Receptor
UPD	Uniparental Disomy
TORCH	Toxoplasmosis,Rubella,Cytomegalovirus,Herpes
PCB	Polychlorinated Biphenyls
RCOG	Royal College Of Obstetricians And Gynaecologists
NEC	Necrotizing Enterocolitis
BW	Birth Weight
PLAV	Placental Volume
PLGF	Placental Growth Factor
AFP	Alpha-Fetoprotein
FPR	False Positive Rate
BMI	Body Mass Index

ABSTRACT

Introduction-Small for Gestational Age infant is defined as having a birth weight for gestational age below the 10th percentile based on a sex-specific reference population .The global burden of Small for Gestational Age accounts for one-third of low birth weight. India has the world's largest number of SGA births, with the prevalence of 12% to 78.4% .Detection of foetus at risk of death or compromise in utero remains the major challenge in modern obstetrics. Recognition before birth and delivered in a timely fashion have a four fold reduction in composite severe morbidity and mortality. A systematic study was carried out to predict the small for gestational age foetus in low risk antenatal patients, using clinical and ultrasound parameters in our study.

Aim of Study-To study the prevalence of SGA infant in low risk singleton pregnancy. To correlate clinical variables and ultrasound parameters with the possibility of birth of SGA infants.

Material Methods- This is a prospective study conducted from January 2020 to December 2020 on 310 healthy low risk pregnant women from 15 weeks presenting to the Outpatient Department at Dayanand Medical College and Hospital Ludhiana, Obstetrics and Gynaecology Department.

Results- 310 patients were recruited and 13 were lost to follow up. The incidence of SGA was 14.1%. SFH variance increases from 2.4% at 24 weeks to 14.3% at 36 weeks with the sensitivity of 2.38% at 24 weeks and 14.29% at 36 weeks which implies SFH was a good predictor in late than early pregnancy .AC and EFW were the most sensitive parameters to detect SGA on Second and Third Trimester Scan with sensitivity of 76.19% and 73.81% respectively .Third trimester doppler of Umblical artery and middle cerebral artery has better sensitivity 50% and 76.19% respectively to predict SGA

Conclusion-For Prediction of SGA Ultrasound parameters are more sensitive and specific than clinical parameters. Third trimester ultrasonography is better than second trimester ultrasonography to predict SGA.

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INTRODUCTION

The global burden of Small for Gestational Age accounts for one-third of low birth weight. [1-3] The estimated prevalence of Small for Gestational Age is highest in South Asia and in Sahelian countries of Africa.

India has the world's largest number of SGA births, due to the large number of births and the high proportion, 46.9%, of births that are SGA. [4]

Small for Gestational Age and Foetal Growth Restriction is a common pregnancy complication that worldwide is a leading cause of stillbirth, neonatal mortality, and short and long-term neonatal morbidity. [5-12]

Small for Gestational Age infant is defined as having a birth weight for gestational age below the 10^{th} percentile based on a sex-specific reference population or; birth weight and/or length more than 2 SD below the sex and gestational age-specific reference mean. [13-15]

Small for gestational age (SGA) is conceptually not the same entity as Foetal Growth Restriction. Small for gestational age (SGA) is also defined as foetus which has failed to achieve specific and arbitrary anthropometric measurements or weight threshold by a specific gestational age, whereas in Foetal Growth Restriction, the infant has not achieved its genetic growth potential in utero. [16]

Foetal Growth Restriction (FGR), otherwise known as Intrauterine Growth Restriction is defined as a pathologic decrease in the rate of foetal growth. Here the foetus does not achieve its inherent growth potential, thereby increasing perinatal morbidity and mortality.

A child who is born SGA has not necessarily suffered from IUGR, and infants who are born after a period of IUGR are not necessarily Small for Gestational Age. Separating small babies, who are small simply as a result of adaptation to maternal size, from those who have suffered IUGR, presents a diagnostic challenge.

The causes of SGA are diverse and range from foetal, maternal, uterine/placental to demographic factors.

Placental insufficiency is a major contributor to the pathophysiology in Small for Gestational Age pregnancies.

It is imperative to identify SGA foetuses prior to delivery. Ante partum foetal surveillance is the corner stone of preventive obstetric management whose aims are:

1. Reducing perinatal mortality and morbidity.
2. SGA infants identified during the antenatal period that receive appropriate and timely interventions have a four-fold decrease in composite severe morbidity and mortality. [17]

SGA infants generally have been categorized as “Asymmetrically” (weight proportionately less than length and head circumference) and

“Symmetrically” (all growth indices proportionately small) SGA. Symmetric growth implies that both brain and body growths are about equally less than normal.

Asymmetric growth implies that body growth (primarily weight, but may also include length) is restricted more than growth of the head and, thus, the brain. However, asymmetric growth in SGA infants affects other organs beyond the brain. Asymmetric and symmetric growth restrictions are the extremes of a continuum of growth patterns.

Approximately 40% of non-anomalous singleton stillbirths are small for gestational age (SGA) [18-19] and live born SGA infants have increased risk of long-term adverse outcomes [20-22] such as

a. low Apgar scores,
b. neonatal intensive care unit (NICU) admissions,
c. neurological injuries,
d. neonatal deaths .

Detection of foetus at risk of death or compromise in utero remains the major challenge in modern obstetrics.

Different methods to identify Small for Gestational Age:

There is no single screening test sufficiently predictive of Small for Gestational Age to recommend routine clinical use.

1. Maternal abdominal palpation and serial measurement of symphysis fundal height-

Measuring the symphysis-fundal height (SFH), the vertical distance from the superior aspect of the symphysis pubis to the apex of the uterine fundus, is typically performed at antenatal care (ANC) visits and frequently the primary method of pregnancy dating.

SFH is relatively simple to measure, and it is that the number of centimetres equals the weeks of gestation after 24 weeks, however variable between measurers and influenced by other factors, such as-

   a. maternal parity,
   b. uterine fibroids,
   c. foetal position and station. [23]

2. Combination of first-trimester maternal serum PAPP-A, Beta Hcg, maternal blood pressure, and uterine artery Doppler.
3. Ultrasonography and Doppler parameters, assessing foetal size via ultrasound is the most commonly used and best method available in clinical practice.

Ultrasonography also plays an vital role in planning and guiding obstetric interventions for foetuses that exhibit abnormal growth rates.[24]

Doppler sonography offers a unique tool for the non invasive evaluation of physiological hemodynamic fetoplacental blood flow information.

It is now proved that significant Doppler change in cerebroplacental ratio occurs with reduction in foetal grow at a time when the foetal well being tests are still normal.

Therefore therapeutic outcome of SGA foetuses can be improved by

   a. Disposing proper care to their mothers,
   b. Providing them adequate treatment,

c. Timely tertiary care and referral facilities at proper time in accordance with the gestational age.

Identification, monitoring and proper intervention are important tasks during pregnancy because sometimes health of these foetuses is endangered in hostile intrauterine environment. Proper monitoring is important; otherwise it can lead to intrauterine foetal morbidity and mortality during pregnancy.

A systematic study was carried out to predict the small for gestational age foetus in low risk antenatal patients, using clinical and ultrasound parameters in our study.

AIMS AND OBJECTIVES

1. To study the prevalence of SGA infants in low risk singleton pregnancy.
2. To correlate clinical variables and ultrasound parameters with the possibility of birth of SGA infants.

REVIEW OF LITERATURE

The prevalence of Small for Gestational Age (SGA) and Foetal Growth Restriction(FGR) in high income countries like United states is around 11 %,while in low income,32.5 million were born SGA and FGR and 53%(16.8 million)were born in South Asia. India has the highest number of SGA births of any country, 12.8 million (range 11.5–14.3 million) (46.9%). [25,26]

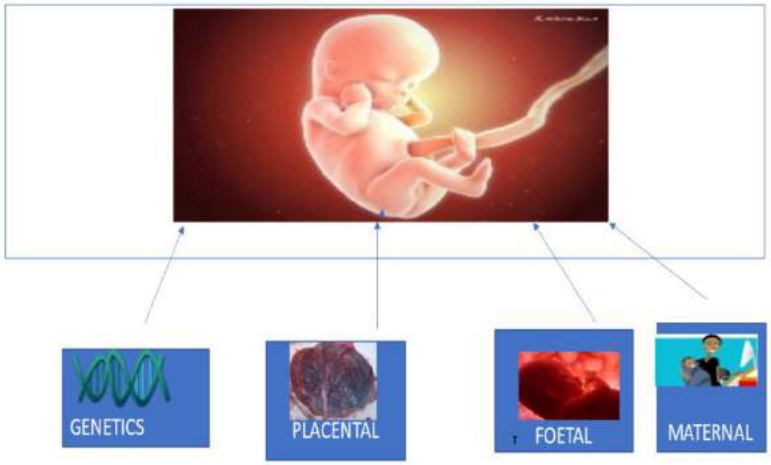
Small For Gestational Age (SGA) are babies born smaller in size than usual for their gestational age.[27] It is defined as weight less than the 10th percentile for the gestational age compared to a gender specific reference population. [28-30] Some of the new born infants classified as small for gestational age, are small constitutionally and are in the lower tail of the growth curve distribution. Infants that are growth restricted in utero (FGR) have a pathological restriction of growth potential because of one or more factors such as malnutrition, placental insufficiency or pregnancy complications. [31,32] Foetal growth restriction (FGR) is not synonymous with SGA. Some, but not all, growth restricted foetuses/infants are SGA while 50–70% of SGA foetuses are constitutionally small, with foetal growth appropriate for maternal size and ethnicity. [33] FGR always refers to a pathological process that result in decelerating foetal growth velocity. As a result, growth restricted foetuses may manifest evidence of foetal compromise (abnormal Doppler studies, reduced liquor volume) therefore serial ultrasound assessment is necessary to confirm FGR.[34]

Pathophysiology

In comparison to Appropriate for Gestational Age foetus (AGA) in SGA and FGR there is a compromise in the supply of nutrients reaching the foetus therefore the foetus responds by reducing its overall size but preserves certain functions like brain growth, lung

maturation, and increasing red blood cell production. [35] The foetus prioritizes blood supply to more vital organs, brain, heart, adrenals, and placenta. There is a decrease in the total body fat and mineral contents in infants with severe SGA and FGR, giving the foetus a wasted appearance. [36]

Etiology of SGA -Etiology is multifactorial.



Picture – 1: Etiology of SGA

1. **GENETICS** [37]

   Enhanced understanding of genetics has identified several potential causes for SGA. These include,

   - Mutations that affect the growth hormone (GH)/insulin-like growth factor (IGF)-1 axis, including mutations in the IGF-1 gene and acid-labile subunit (ALS) deficiency. [38-47]
   - In addition, select polymorphisms observed in patients with SGA include those involved in genes associated with obesity, type 2 diabetes, hypertension, ischemic heart

disease and deletion of exon 3 growth hormone receptor (d3-GHR) polymorphism. [48-50]

- Uniparental disomy (UPD) and imprinting effects may also underlie some of the phenotypes observed in SGA individuals. [51,52] The variety of genetic mutations associated with SGA births helps explain the diversity of phenotype characteristics, such as impaired motor or mental development, present in individuals with disorders.

2. Placental Causes [53]

- Avascular villi
- Decidual or spiral artery arteritis
- Infectious villitis (as with TORCH infections)
- Multiple gestation (limited endometrial surface area, vascular anastomoses)
- Multiple infarctions
- Partial molar pregnancy
- Placenta previa and abruption
- Single umbilical artery, umbilical thrombosis, abnormal umbilical vascular insertions
- Syncytial knots
- Tumors, including chorioangioma and hemangioma

3. Foetal Causes [54]

- Chromosomal abnormalities (e.g, trisomy's) and syndromes
- Metabolic disorders
- Congenital infections (e.g, toxoplasmosis, rubella, cytomegalovirus)

4. Maternal Factors [55]

- Both young and advanced maternal age
- Maternal pre-pregnancy short stature and thinness

- Poor maternal weight gain during the latter third of pregnancy
- Maternal illness during pregnancy (diabetes, preeclampsia)
- Nulliparity
- Failure to obtain normal medical care during pregnancy
- Cigarette smoking, cocaine use, other substance abuse
- Lower socioeconomic status
- African-American ethnicity
- Polyhydramnios
- Intrauterine infections and drugs including (Amphetamines, Antimetabolites (e.g,aminopterin, busulfan, methotrexate), Bromides, Cocaine, Ethanol, Heroin and other narcotics (eg, morphine, methadone), Hydantoin, Isotretinoin, Metals (eg, mercury, lead), Phencyclidine, Polychlorinated biphenyls (PCBs), Propranolol, Steroids, Tobacco (carbon-monoxide, nicotine, thiocyanate), Toluene, Trimethadione, Warfarin).

5. Race and Ethnicity

It is widely acknowledged that parental characteristics and ethnicity have a primary influence in determining the “normal” foetal growth and neonatal birth weight. [56]

6. Foetal Gender

In 1996 Marsál et al, found that foetal *gender* influences intrauterine growth rate and consequently birth weight. [57] Male infants have higher birth weight than females at the same gestational length, and at term this difference is approximately 100 gram. De Jong et al in1998 found that the gender difference in foetal growth becomes apparent in the third trimester of gestation, and recent studies have implied that it is partly

mediated by an increased growth of the male foetus in the last two gestational weeks. [58]

Evaluation in Antenatal Period

Antenatal period is the most important period for the prenatal diagnosis of SGA .Maternal medical history and obstetrical history are very important factors during the antenatal period. What important is, in identifying small for gestational age, there should be accurate dating of gestational age [59,60] and accurate assessment of birth weight. [61] The gold standard for gestational age assessment is the early ultrasound ideally in the first trimester (accuracy ±5 days if first trimester and ±7 days after first trimester) [58,61] while Gestational age based on last menstrual period has lower accuracy (±14 days) because of different cycle length in different women and recall error.[62]

Clinical examination by symphysio fundal height (SFH) is simple affordable and common way of detecting SGA, measuring from 24 weeks of pregnancy and if there is discordance between the measured fundal height and gestational age then there will be suspicion of SGA. According to RCOG guidelines women with a single SFH which plots below 10th centile or serial measurements which demonstrates slow growth should be referred for ultrasound measurement of foetal size. It is said to be discordant when the fundal height is at least 3 cm lag. [63] Symphysis-fundal height measurement for the diagnosis of SGA and FGR, had sensitivities between 13% to 86%. [63-71] In USG use of <10th centile parameters for AC or EFW has better sensitivity and specificity. [72,73] Adverse perinatal outcome was also highest when both measures were< 10th centile. [74] Also Kayem et al [75] found that measurement of AC in low risk women at term was a better predictor of birth weight ≤ 2.5 kg than a single measurement of SFH (LR+ 9.9 versus 7.1, LR– 0.5 versus 0.6)

Another method of screening for SGA is the routine ultrasound examination, but there is no agreement on the timing and number of screening required, for a single screening, the exam is performed between 32 to 36 weeks of gestation and if two screening is required, the exams are usually performed at 32 and 36 weeks of gestation.[76,77] SGA is diagnosed in postnatal life when the birth weight is less than the 10th percentile for gestational age. Selecting the appropriate comparison population is the main hurdle in defining SGA [25,31,78] and what important is to select the appropriate comparison charts as the rates of small for gestational age can differ based on choice of reference population. [78,79]

Two types of charts are- Reference and Standard Charts.

Standard charts are based on low-risk pregnancies; they are prescriptive and delineate how a population should grow under optimal environmental and health conditions. Reference charts, include both low-risk and high risk pregnancies, they are descriptive and specify growth in a particular place and time. [80,81] The majority of the charts in literature are reference charts that differ considerably in terms of sample size, population characteristics, representativeness (hospital based versus population-based), inclusion/exclusion criteria and methods of gestational age assessment. [31,78]

DIFFERENTIAL DIAGNOSIS

Small for gestational age infant must be distinguished from FGR because the latter is associated with increased risk of mortality and morbidity. The constitutional SGA have better outcome and external features as these infants do not have wasted features of intrauterine malnourishment. [82]

PROGNOSIS

As compared with AGA,SGA infants have increased perinatal morbidity and mortality both in term and preterm new born [83-91] Infant mortality rate also has been shown to increase with decreasing birth

weight percentile [90,91], in a study perinatal mortality and morbidity showed the highest rate in SGA<5th centile. [92]

Short term complications includes [93-97]

a. Hypospadias
b. Broncho pulmonary dysplasia,
c. Meconium aspiration syndrome,
d. Obesity,
e. Hypoglycaemia, hypotension
f. Polycystic ovary syndrome NEC,
g. Late-onset neonatal sepsis, acidosis
h. Polycythaemia and
i. Prolonged hospitalisation

Long term consequences [93-97]

These children are prone to have, chronic kidney disease, coronary heart disease an earlier onset of menarche, exaggerated precocious adrenarche, precocious pubarche and faster progression of puberty than children born appropriate for gestational age (AGA).

Because of its association with adverse outcomes, the prenatal diagnosis of SGA has a significant impact in clinical practice,

1. Increasing anxiety among mothers and caregivers and leading to intervention,
2. Increasing the rates of hospital admission,
3. Intensive foetal monitoring, and
4. Termination of pregnancy by induction of labour or caesarean delivery, aimed at reducing neonatal complications.

Therefore, it is understandable how relevant might be an appropriate diagnosis, both to reduce the risk of adverse neonatal outcome and to avoid an over diagnosis with subsequent unnecessary interventions.

PREDICTION OF SMALL FOR GESTATIONAL AGE

Various Studies Carried Out On Clinical Prediction of SGA.

In the study done by ASD Pay, et al [98] in 2015 on, Prediction of small for gestational age status by symphysis fundal height: a registry-based population cohort study at, University of Bergen, Bergen, Norway, observed in 42,018 women with ultrasound dated singleton pregnancies who delivered at Sahlgrenska University Hospital, concluded that only the most recent symphysio fundal (SF) measurement has predictive value; a static or falling pattern of SF values did not increase SGA likelihood. SF height was a stronger SGA predictor in late than in early pregnancy. Using an SGA relative risk cut-off limit of ≥2-fold, the overall sensitivity was 50% and the overall specificity 80%. Only the most recent SF measurement was useful in predicting BW deviation; previous measurements added nothing to the predictive value

In a study done by, Aase Serine D Pay et al, [99] in 2015 on Symphysis-fundus height measurement to predict small-for-gestational-age status at birth: a systematic review, concluded that SF height has high false-negative rates for SGA observed that, the sensitivity of SF height measurement for SGA (BW<10th percentile) prediction ranged from 0.27 to 0.76 and specificity ranged from 0.79 to 0.92. Positive and negative likelihood ratios ranged from 1.91 to 9.09 and from 0.29 to 0.83, respectively.

Various studies on Ultrasound Measurements carried out to predict Small for Gestational Age Infant are as follow

In a study done by, Menachem Graupe et al [100] in 2003, on Screening for intrauterine growth restriction using second trimester doppler ultrasound in 2006 at Medical Centre, Maternal Foetal Medicine & The Burns and Allen Research Institute, Los Angeles, CA in 634 pregnancy observed that the initial pulsatility index (PI) in the left and right uterine arteries and umbilical artery was higher in infants later diagnosed IUGR ($p<0.0001$, $p=0.03$ and $p=0.03$) for the first second and third scan. A composite pregnancy pulsatility index (PPI) was also increased in these infants ($p<0.0001$). PPI above 6.0 was associated with birth

weight below the tenth and fifth percentile (sensitivity 33% and 50%, negative predictive value 95% and 98%).

In the study done by L. W. LAW et al [101] in 2009 on, which ultrasound or biochemical markers are independent predictors of small-for-gestational age? at The Chinese University of Hong Kong, observed in 619 women with a singleton pregnancy Suggested that Placental volume was the only independent first-trimester predictor of SGA. In the second trimester, both placental volume (PlaV) and uterine artery (UtA-PI) were independent predictors. The first-trimester, second trimester and combined models achieved a sensitivity of 41%, 45% and 48%, respectively, for a false-positive rate of 20% in the prediction of SGA.

In the study done by L C Poon et al [102] in the year 2015 on Prediction of small-for-gestational-age neonates: screening by biophysical and biochemical markers at 19–24 weeks in King's College Hospital, London observed that Significant independent contributions to the prediction of SGA<5th were provided by maternal factors, foetal biometry, UtA PI and serum PlGF and AFP found that the detection rate (DR) of such combined screening at 19–24 weeks was 100%, 78% and 42% for SGA<5th centile delivering<32, at 32–36 and≥37 weeks' gestation, respectively, at a false-positive rate (FPR) of 10%.Prenatal prediction of a high proportion of SGA neonates necessitates the undertaking of screening in the third trimester of pregnancy, in addition to assessment in the second trimester, and the timing of such screening, at 32 and/or 36 weeks, should be contingent on the results of the assessment at 19 – 24 week.

In the study done by Lesley M. E et al [103] in 2016 on, Prediction of Small for Gestational Age Infants in Healthy Nulliparous Women Using Clinical and Ultrasound Risk Factors Combined with Early Pregnancy Biomarkers at University College Cork, Ireland on 5606 patients observed that Models for prediction of small for gestational age, which combine biomarkers, clinical and ultrasound data from a cohort of low-

risk nulliparous women achieved modest performance. Incorporation of biomarkers into the models resulted in no improvement in performance of prediction of All-SGA and Normotensive-SGA but a small improvement in prediction of Hypertensive-SGA.

In a study done by A. CIOBANU et al [104] in 2019 on Prediction of small-for-gestational-age neonates at 35–37 weeks' gestation: contribution of maternal factors and growth velocity between 32 and 36 weeks at King's College Hospital, London observed that in 14,497 singleton pregnancies undergoing routine ultrasound examination at 30+0 to 34+6 and at 35+0 to 36+6 weeks' gestation. Documented performance of EFW at 35+0 to 36+6 weeks' gestation for delivery of a SGA neonate and adverse perinatal outcome is not improved by addition of estimated growth velocity between 32 and 36 weeks' gestation.

MATERIAL AND METHODS

Source of Data

This is a prospective study conducted on 310 healthy low risk pregnant women from 15 weeks presenting to the outpatient department at Dayanand Medical College and Hospital Ludhiana, Obstetrics and Gynaecology Department.

This study was conducted from January 2020 to December 2020.

The inclusion criteria being all healthy Low risk pregnant women with singleton pregnancy

THE Exclusion criteria was:-

1. All pregnant female with elevated risk of preeclampsia, small for gestational age (SGA) or spontaneous preterm birth due to underlying medical conditions (known chronic hypertension, and/or pre-existing diabetes, renal disease, systemic lupus erythematosus, or anti-phospholipid syndrome).
2. Previous cervical knife cone biopsy, 3terminations or 3miscarriages or current ruptured membrane.
3. Female with known major foetal anomaly or abnormal karyotype.
4. Female with interventions (such as low dose aspirin) that might modify pregnancy. [105]

METHOD OF COLLECTION OF DATA

The current study was conducted on 310 low risk pregnant womens who presented in Opd in the Department of Obstetrics and Gynaecology, Dayanand Medical College and Hospital, Ludhiana.13 womens were lost to follow up. Pregnant womens were recruited from 15 weeks of period of gestation. The patient characteristics recorded were maternal age, maternal body mass index (BMI), maternal pre pregnancy weight, parity, education, nutrional status, neonatal birth weight, gestational age at delivery, at each visit ultrasound foetal

biometrics with estimated foetal weight (EFW) and doppler parameters. In addition to these patients were given standard antenatal care. Clinical parameter like Symphysio Fundal Height was measured from 24 weeks and was noted at each antenatal visit. Serial Third Trimester Scan from 32-36 weeks were done in which foetal biometry, estimated foetal weight and doppler parameters were noted. Serial ultrasound measurements included, head circumference (HC), abdominal circumference (AC), femur length (FL) and Dopplers parameters in the Umbilical Artery, Uterine Artery and Middle Cerebral Artery . We performed all ultrasound measurements based on the recommendations of the International Society of Ultrasound in Obstetrics and Gynaecology. The EFW was calculated according to the Hadlock formula. [106] Log 10 BW=1.326–0.00326 (AC) (FL) + 0.0107 (HC) + 0.0438 (AC) + 0.158 (FL).

Femur length was measured on the long axis from the greater trochanter to the end of the ossified shaft. [107] Abdominal circumference was measured **in the transverse plane at the foetal liver**, with the umbilical portion of the left portal vein in the centre of the abdomen. [108] Head circumference was measured as an ellipse around the perimeter of the foetal skull. [109]

The Dopplers Parameters were evaluated in the umbilical artery, uterine artery and middle cerebral artery, for the Uterine artery and Umbilical artery, a pulsatility index value >95th percentile was considered abnormal and Middle cerebral Artery pulsatile index <5th centile was considered abnormal. [110]

Patients were followed up till delivery. Maternal and foetal parameters including period of gestation at delivery, mode of delivery, birth weight, sex of the foetus, NICU admission were noted. Depending on the birth weight at the respective gestation, the diagnosis of Small for Gestational Age (SGA) was made if the birth weight was below the 10th percentile for that gestational age, in reference with growth percentile charts developed by Hadlock et al. [111] Appropriate for

Gestational Age (AGA) foetus was defined as a birth weight between the 10th and the 90th percentile according to the same growth chart and patients were divided into two group depending on the foetal weight at the time of birth.

Group A-comprised of patients with foetal weight <10th centile (Small for Gestational Age foetus).

Group B- comprised of patients with foetal weight >10th centile (Appropriate for Gestational Age foetus).

Maternal and foetal parameters were compared in both the groups.

OBSERVATION AND RESULTS

In our study, a total of 310 antenatal patients were recruited and 13 were lost to follow up. Two hundred ninety seven (297) patients were analyzed from 15 weeks till delivery.

A- MATERNAL CHARACTERSTICS

I - DEMOGRAPHIC PARAMETERS

1. AGE

Distribution of patient's age according to age groups:-

Age group (years)	No. of cases (n=297)	Percentage
≤25	17	5.70%
26-30	189	63.60%
> 30	91	30.60%
Total	297	100.00%

TABLE 1- DISTRIBUTION OF AGE ACCORDING TO AGE GROUPS

In our study out of 297 patients, 17 (5.7%) patients were of age group <25 years while 189(63.6%) patients were of age group 26-30 years and 91 (30.6%) patients were of age group >30 years. The minimum age was 19 year while maximum age was 40 and the mean age was 29.24 with standard deviation of 3.78.

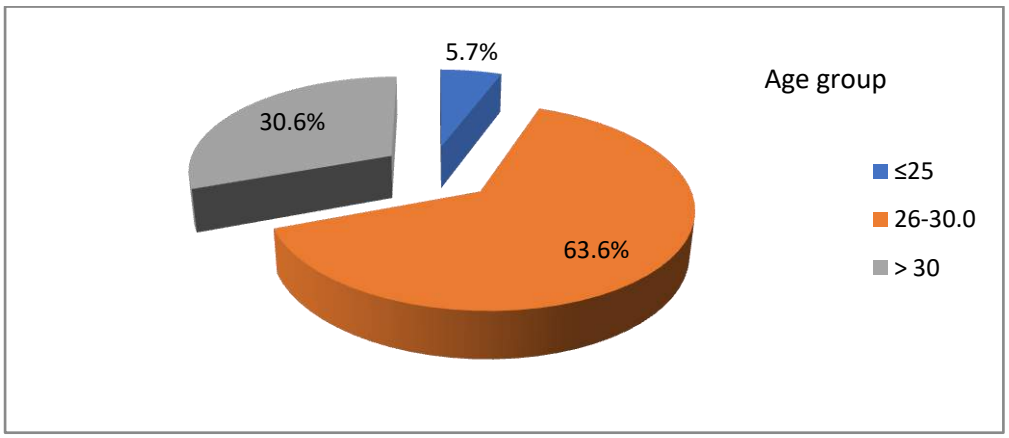


FIGURE 1- DISTRIBUTION OF PATIENTS ACCORDING TO AGE GROUPS

2. Distribution of women under study according to parity.

PARITY	No. of cases (n=297)	Percentage
Primigravida	102	34.3%
Multigravida	195	65.7%
Total	297	100.0%

TABLE 2- DISTRIBUTION OF WOMEN UNDER STUDY ACCORDING TO PARITY

In our study out of 297 patients, 102 (34%) were Primigravida and 195 (65.7%) were Multigravida**.**

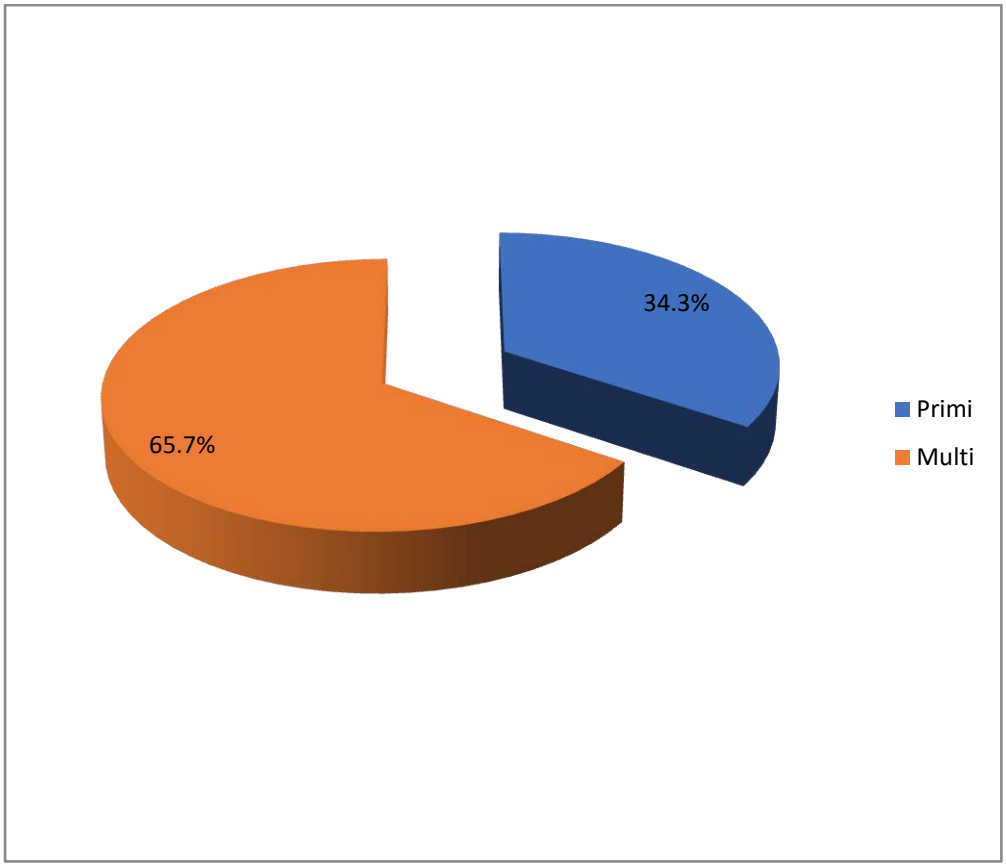


FIGURE 2- DISTRIBUTION OF WOMEN ACCORDING TO PARITY

3. Distribution of women under study according to Pre pregnancy weight.

In our study minimum pregnancy weight was 50 kg while maximum was 80 kg and the mean was 58.96 kg with standard deviation of 5.36 kg.

4. Distribution of women under study according to Pre pregnancy BMI.

In our study minimum BMI was 16.51 kg/m^2 while maximum BMI was 29.38 kg/m^2 and mean BMI was 21.94 kg/m^2 with standard deviation of 2.34 kg/m^2

5. Distribution of patients according to the Occupation.

Occupation	No. of cases (n=297)	Percentage
Employed	225	75.8%
Unemployed	72	24.2%
Total	297	100.0%

TABLE 3- DISTRIBUTION ACCORDING TO THE OCCUPATION

In our study out of 297 patients, 225 (75.8%) were Employed and 72 (24.2%) were Unemployed.

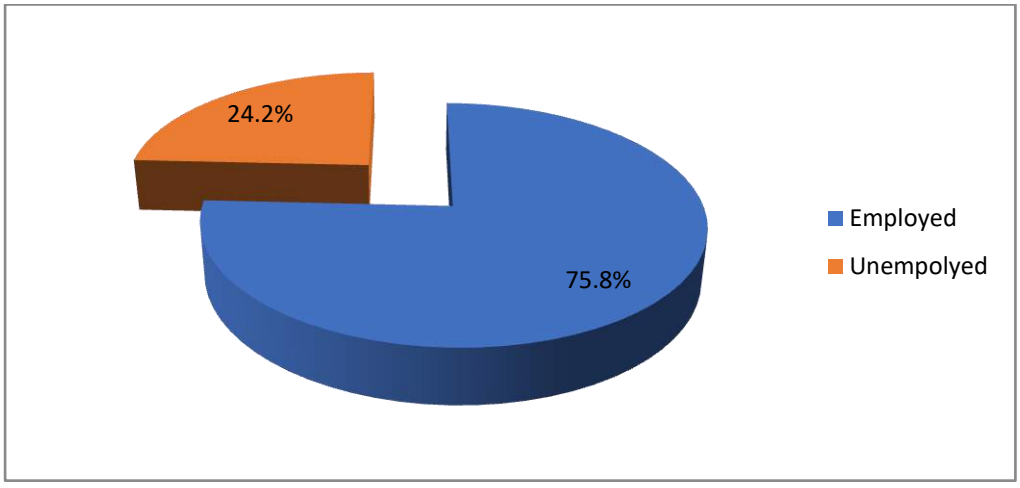


FIGURE 3- DISTRIBUTION ACCORDING TO OCCUPATION

6. Distribution of patients according to education.

EDUCATION	No. of cases (n=297)	Percentage
Under graduation	94	31.6%
Graduation	159	53.5%
Post graduation	44	14.8%
Total	297	100%

TABLE 4- DISTRIBUTION ACCORDING TO EDUCATION

In our study out of 297 patients, 94 (31.6%) were undegraduate while 159 (53.5%) were graduate and 44 (14.8%) were postgraduate.

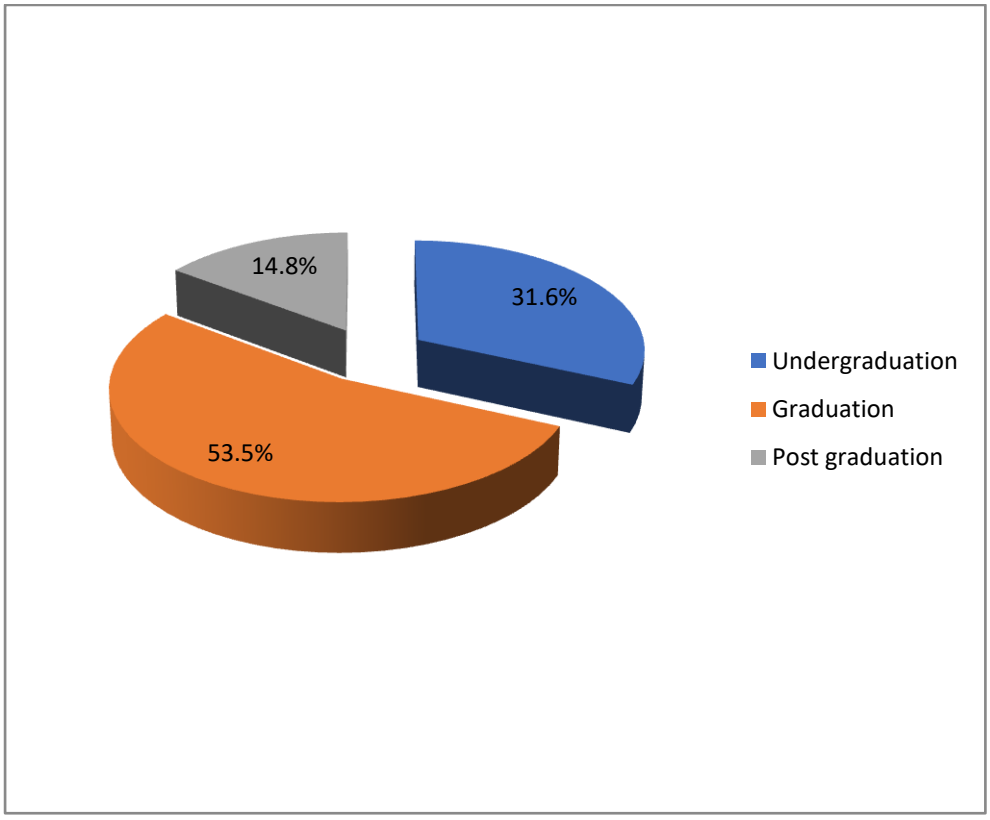


FIGURE 4- DISTRIBUTION ACCORDING TO EDUCATION

7. Distribution of patients according to Nutritional Status

Protein and Calories intake	No. of cases (n=297)	Percentage
Adequate	245	82.5%
Inadequate	52	17.5%
Total	297	100.0

TABLE 5- DISTRIBUTION ACCORDING TO NUTRITIONAL STATUS

In our study out of 297 patients, 245 (82.5%) had Adequate protein and calories intake and 52 (17.5%) had Inadequate calorie and protein intake.

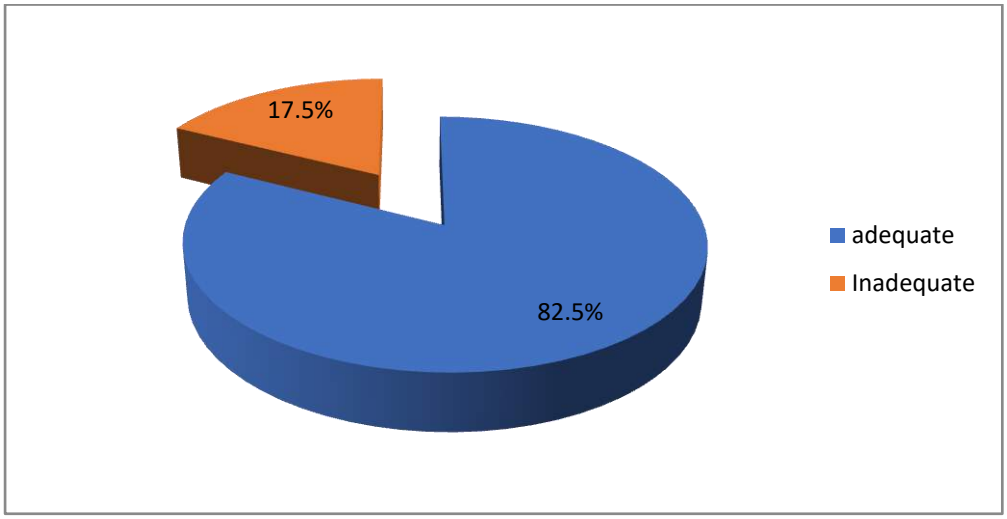


FIGURE 5- DISTRIBUTION ACCORDING TO NUTRIONAL STATUS

II - Clinical Parameters - Symphysio Fundal Height (SFH).

a- Distribution of patients according to symphysio fundal height at 24 weeks.

SFH vs POG (24 weeks)	No. of cases (n=297)	Percentage
Corresponding	294	99.0%
Not Corresponding	3	1.0%
Total	297	100.0

TABLE 6- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 24 WEEKS

In our study out of 297 patients 294 (99%) patients had SFH corresponding to period of gestation and 3 (1%) patients SFH not corresponding to period of gestation.

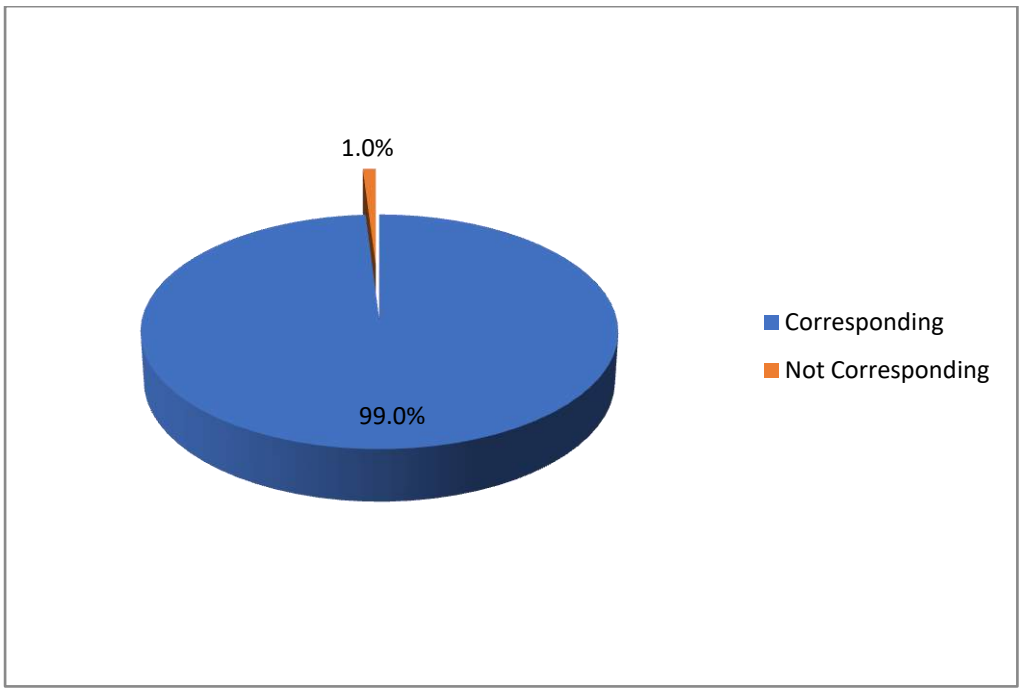


FIGURE 6- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 24 WEEKS

b- Distribution of patients according to symphysio fundal height at 28 weeks.

SFH vs POG (28 weeks)	No. of cases (n=297)	Percentage
Corresponding	288	97.0
Not Corresponding	9	3.0
Total	297	100.0

TABLE 7- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 28 WEEKS

In our study out of 297 patients 288 (97%) patients had SFH corresponding to period of gestation and 9 (3%) patients had SFH not corresponding to period of gestation.

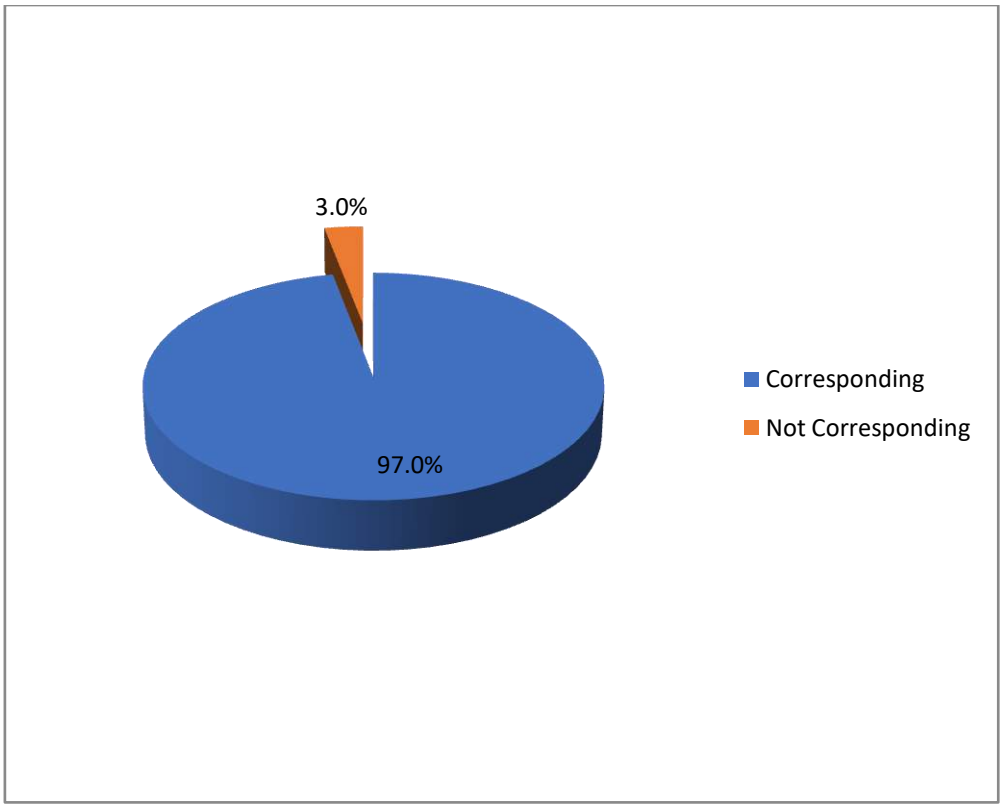


FIGURE 7- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 28 WEEKS

c- Distribution of patients according to symphysio fundal height at 32 weeks.

SFH vs POG (32 weeks)	No. of cases (n=297)	Percentage
Corresponding	268	90.2
Not Corresponding	29	9.8
Total	297	100.0

TABLE 8- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 32 WEEKS

In our study out of 297 patients 268 (90.2%) patients had SFH corresponding to period of gestation and 29 (9.8%) patients had SFH not corresponding to period of gestation.

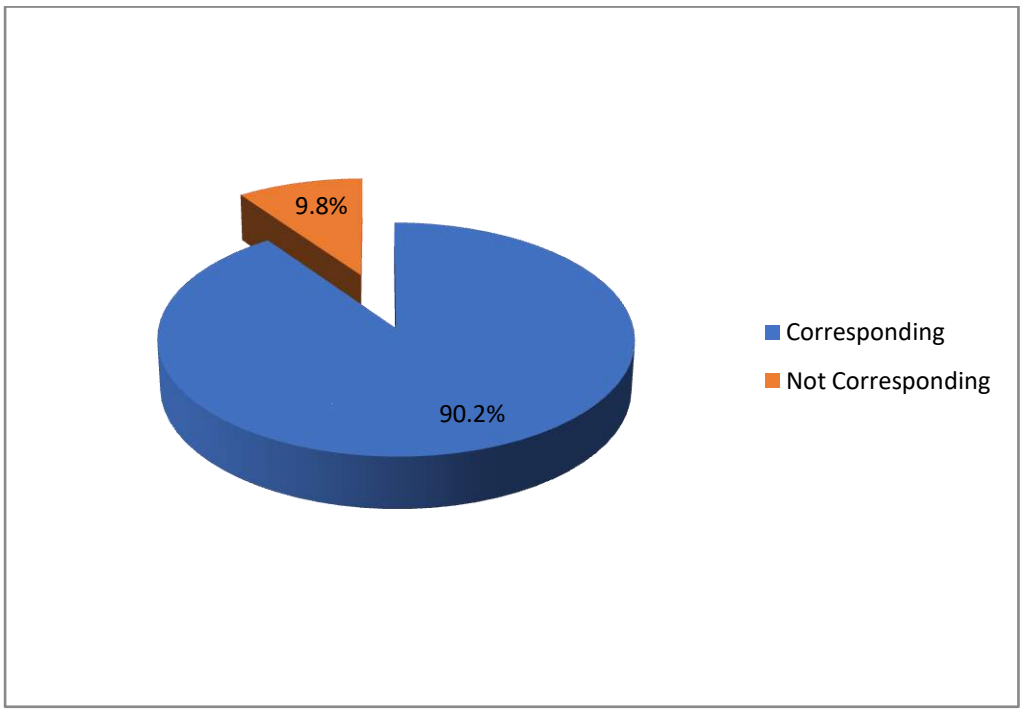


FIGURE 8-DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 32 WEEKS

d- Distribution of patients according to symphysio fundal height at 36 weeks.

SFH vs POG (36 weeks)	No. of cases (n=297)	Percentage
Corresponding	261	87.9
Not Corresponding	36	12.1
Total	297	100.0

TABLE 9- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 36 WEEKS

In our study out of 297 patients 261 (87.9%) patients had SFH corresponding to period of gestation and 36 (12.1%) patients had SFH not corresponding to period of gestation.

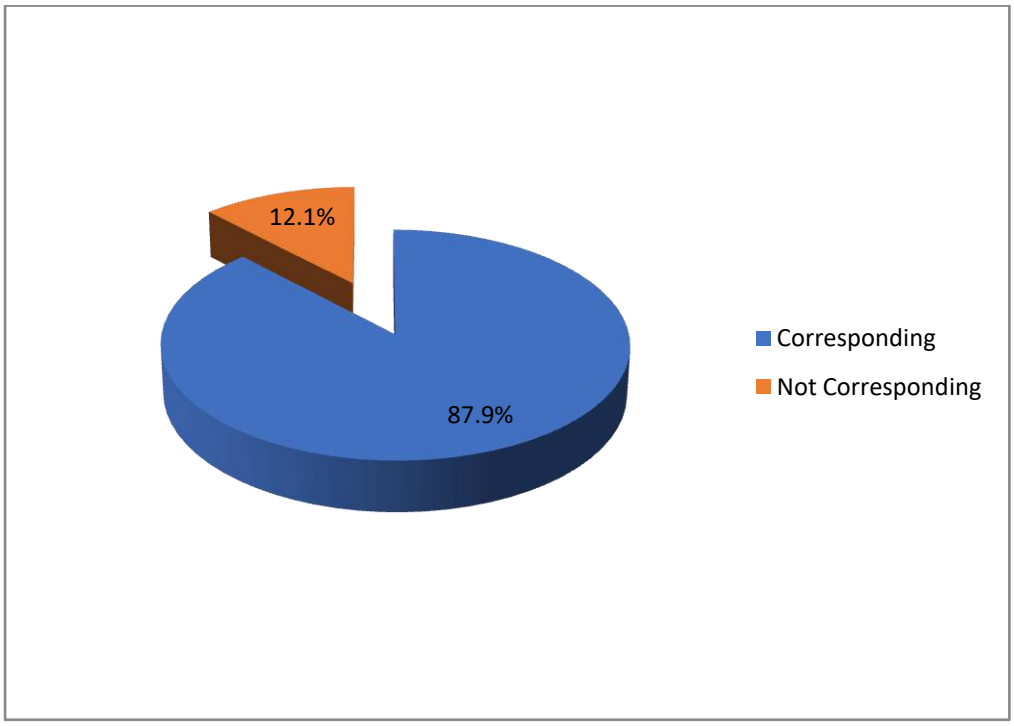


FIGURE 9- DISTRIBUTION ACCORDING TO SYMPHYSIO FUNDAL HEIGHT AT 36 WEEKS.

III - Ultrasound Measurements

1- Foetal Biometry On Anomaly Scam

a- Distribution of patients according to foetal biometric parameters

Second Trimester Scan (n=297)	Minimum	Maximum	Mean	Standard Deviation
Femur length (FL) mm	24.00	31.00	28.59	1.92
Abdominal circumference (AC) mm	137.00	155.00	145.79	6.49
Head circumference (HC) mm	158.00	175.00	166.40	5.66
Estimated foetal weight (EFW) gm	270.00	300.00	289.56	8.30

TABLE 10- DISTRIBUTION ACCORDING TO FOETAL BIOMETRIC PARAMETERS

In our study minimum Femur length (FL) was 24 mm while maximum femur length (FL) was 31 mm and mean femur length (FL) was 28.59 with standard deviation of 1.92 .The minimum Abdominal circumference (AC) was 137 mm while maximum (AC) was 155 mm and mean (AC) was 145.79 with standard deviation of 6.49.The minimum Head circumference (HC) was 158 mm while maximum (HC) was 175 mm and mean (HC) was 166.40 with standard deviation of 5.66 and minimum Estimated foetal weight (EFW) was 270 gm while maximum (EFW) was 300gm and Mean (EFW) is 289.56 with standard deviation of 8.30

b- Foetal Biometry Parameters Second Trimester Scan in Percentile.

Second Trimester Scan (n=297)	< 10th percentile	> 10th percentile
Femur length (FL)	132 (44.4%)	165 (55.6%)
Abdominal circumference (AC)	109 (36.7%)	188 (63.3%)
Head circumference (HC)	107 (36.0%)	190 (64.0%)
Estimated foetal weight (EFW)	114 (38.4%)	83 (61.6%)

TABLE 11- FOETAL BIOMETRY PARAMETERS ON SECOND TRIMESTER SCAN IN PERCENTILE

In our study Fl, AC, HC, EFW (<10th centile and >10th centile) were 132 (44.4%) vs 165 (55.6%), 109 (36.7%) vs 188 (63.3%), 107 (36%) vs 190 (64.0%) and 114 (38.4%) vs 83 (61.6%) respectively.

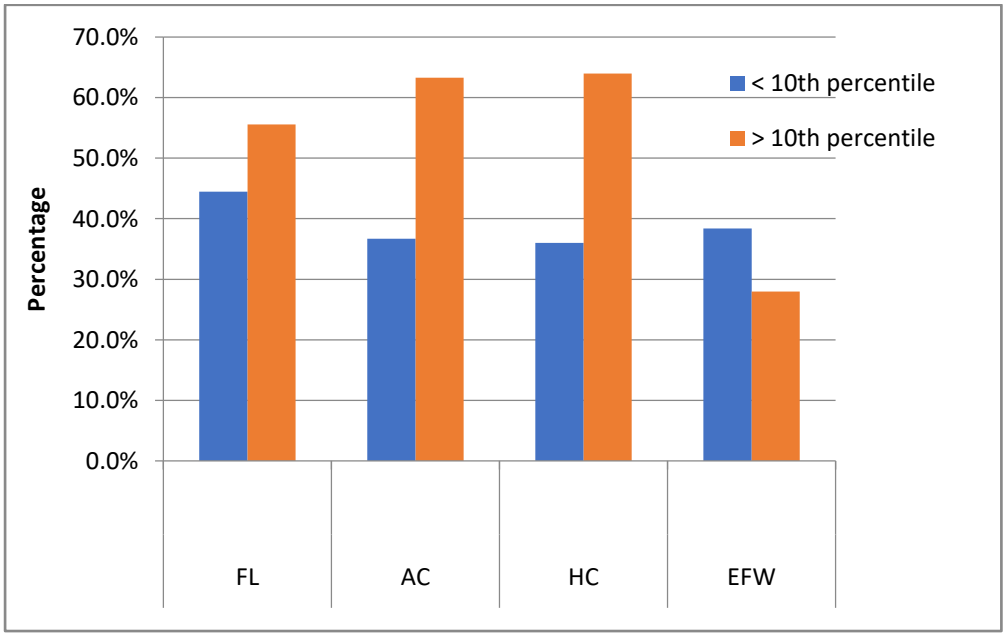


FIGURE 10- DISTRIBUTION OF PATIENTS ACCORDING TO FOETAL BIOMETRY

2. Dopplers Parameters on Second Trimester Scan

a. UMBLICAL ARTERY PULSATILE INDEX (UA- PI)

Distribution of patients according to Umblical artery pulsatile index.

UMBLICAL ARTERY PULSATILE INDEX	No. of cases (n=297)	Percentage
< 95th centile	244	82.2%
> 95th centile	53	17.8%
Total	297	100.0%

Table 12- Distribution according to Umblical artery pulsatile index.

In our study, Umblical Artery PI (<95th percentile and >95th percentile) was 244 (82.2%) and 53 (17.8%) respectively.

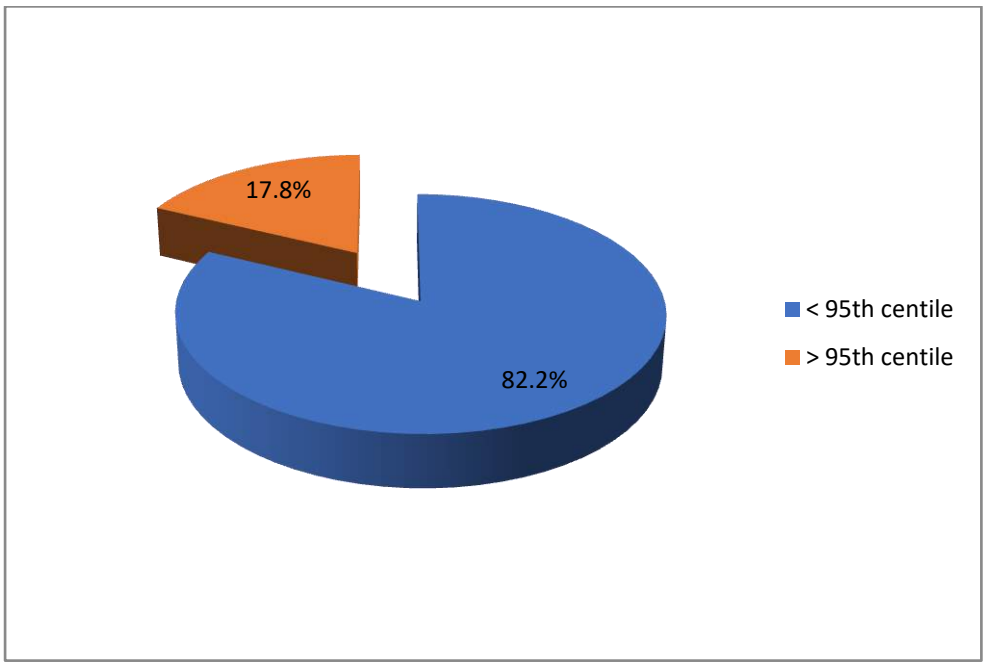


FIGURE 11- DISTRIBUTION ACCORDING TO UMBLICAL ARTERY PULSATILE INDEX (UA- PI)

b. UTERINE ARTERY PULSATILE INDEX (UtA- PI)

Distribution of patients according to Uterine artery pulsatile index

UTERINE ARTERY PULSATILE INDEX	No. of cases (n=297)	Percentage
< 95th centile	261	87.9%
> 95th centile	36	12.1%
Total	297	100.0%

TABLE 13- DISTRIBUTION ACCORDING TO UTERINE ARTERY PULSATILE INDEX

In our study, Uterine Artery Pulsatile index of (<95th percentile and >95th percentile) was 261 (87.9%) and 36 (12.1%) respectively.

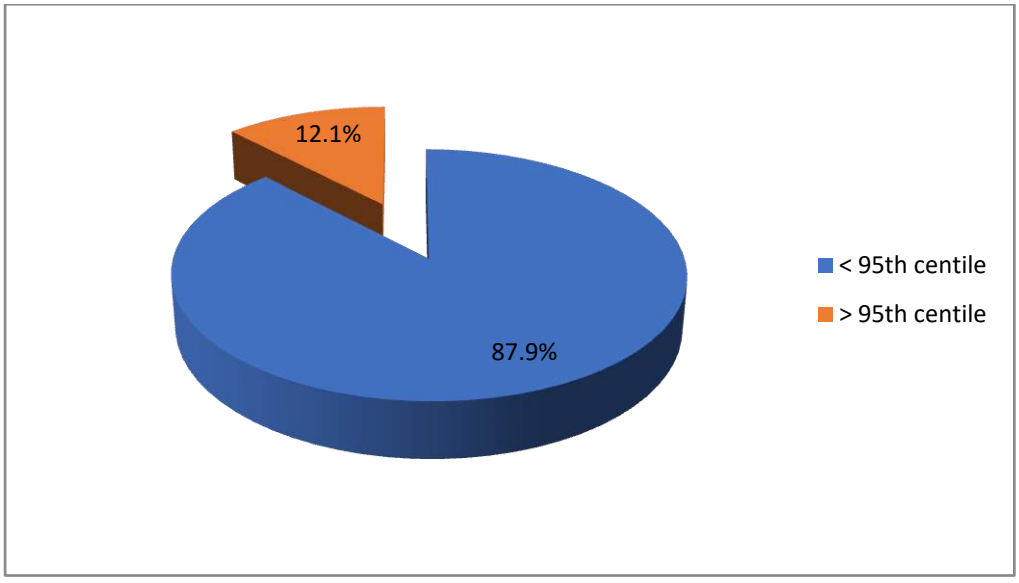


FIGURE 12- DISTRIBUTION ACCORDING TO UTERINE ARTERY PULSATILE INDEX (UA- PI)

c. MIDDLE CEREBRAL ARTERY PULSATILE INDEX (MCA- PI)

Distribution of patients according to Middle cerebral artery pulsatile index.

MIDDLE CEREBRAL ARTERY Pulsatile index (MCA- PI)	No. of cases (n=297)	Percentage
< 5th centile	59	19.9%
> 5th centile	238	80.1%
Total	297	100%

TABLE 14- DISTRIBUTION MIDDLE CEREBRAL ARTERY PULSATILE INDEX

In our study, Middle Cerebral Artery PI (<5th percentile and >5th percentile) was 59 (19.9%) and 238 (80.1%) respectively.

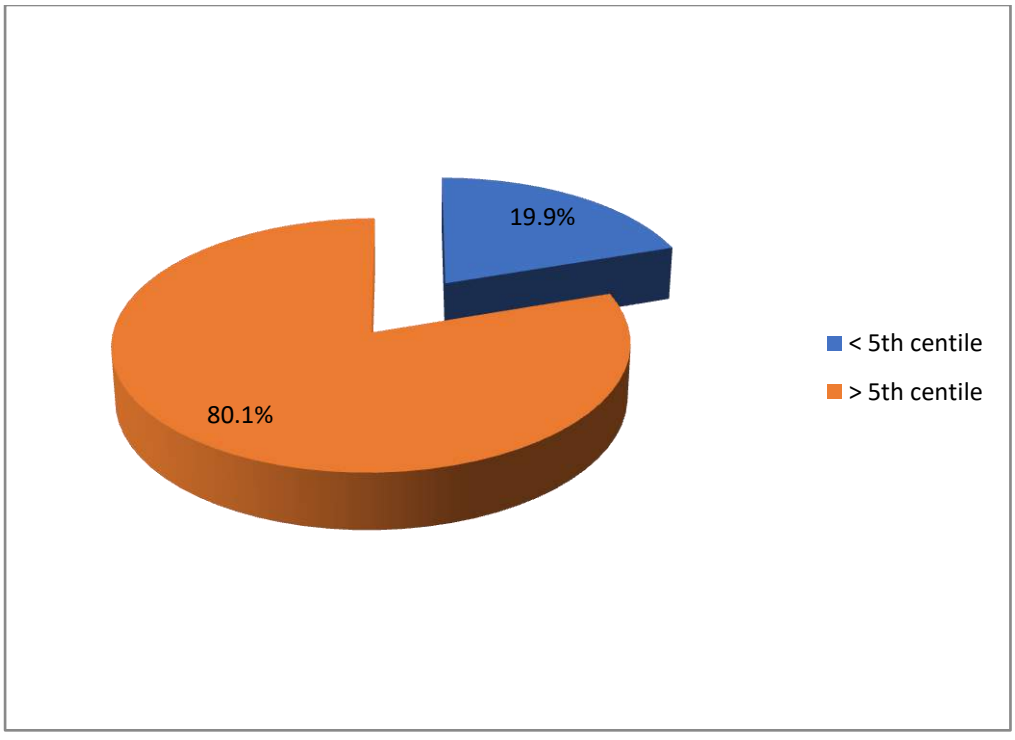


FIGURE 13- DISTRIBUTION ACCORDING TO MIDDLE CEREBRAL ARTERY PULSATILE INDEX (UA- PI)

3. FOETAL BIOMETRY ON THIRD TRIMESTER SCAN.

a- Distribution of patients according to foetal biometric parameters

Third Trimester Scan (n=297)	N	Minimum	Maximum	Mean	Std. Deviation
Femur length (FL) mm	297	58.00	68.00	64.70	2.92
Abdominal circumference (AC) mm	297	269.00	310.00	292.63	11.81
Head circumference (HC) mm	297	288.00	320.00	303.01	9.29
Estimated Foetal Weight (EFW) gm	297	1706.00	2200.00	2040.29	142.46

TABLE 15- DISTRIBUTION ACCORDING TO FOETAL BIOMETRIC PARAMETERS

In our study minimum (FL) was 58 mm while maximum (FL) was 68 mm and mean (FL) was 64.70 with standard deviation of 2.92.The minimum (AC) was 269 mm while maximum (AC) was 310 mm and mean (AC) was 292.63 with standard deviation of 11.81.The minimum (HC) was 288 mm while maximum (HC) was 320 mm and mean (HC) was 303.01 with standard deviation of 9.29 and minimum (EFW) was 1706 gm while maximum (EFW) was 2200 and mean (EFW) was 2040 with standard deviation of 142.46.

b- Distribution of patients according to foetal biometric parameters (percentile)

Third Trimester Scan (n=297)	< 10th percentile	> 10th percentile
Femur length (FL)	74(24.9%)	223(75.1%)
Abdominal circumference (AC)	60(20.2%)	237(79.8%)
Head circumference (HC)	82(27.6%)	215(72.4%)
Estimated foetal weight (EFW)	58(19.5%)	239(80.5%)

TABLE 16- DISTRIBUTION ACCORDING TO FOETAL BIOMETRIC PARAMETERS (PERCENTILE)

In our study Fl, AC, HC, EFW (<10th centile and >10th centile) were 74 (24.9%) vs 223 (75.1%), 60 (20.2%) vs 237 (79.8%), 82 (27.6%) vs 215 (72.4%) and 58 (19.5%) vs 239 (80.5%) respectively .

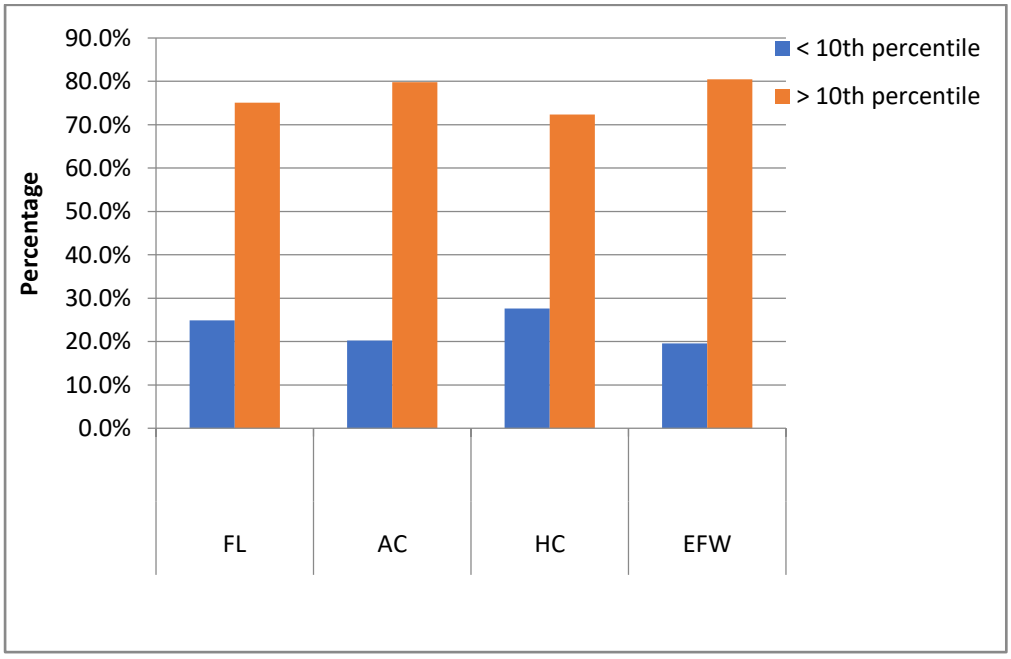


FIGURE 14- DISTRIBUTION OF PATIENTS ACCORDING TO FOETAL BIOMETRY

4. DOPPLER PARAMETERS ON THIRD TRIMESTER SCAN

a- UMBLICAL ARTERY PULSATILE INDEX (UA-PI)

Disribution of women according to Umblical artery Pulsatile Index.

UMBLICAL ARTERY PULSATILE INDEX	No. of cases (n=297)	Percentage
< 95th centile	190	64.0%
> 95th centile	107	36.0%
Total	297	100.0%

TABLE 17- DISTRIBUTION ACCORDING TO UMBLICAL ARTERY PULSATILE INDEX

In our study, Umblical Artery PI of <95th percentile and >95th percentile were seen in 190 (64%) and 107 (36%) respectively.

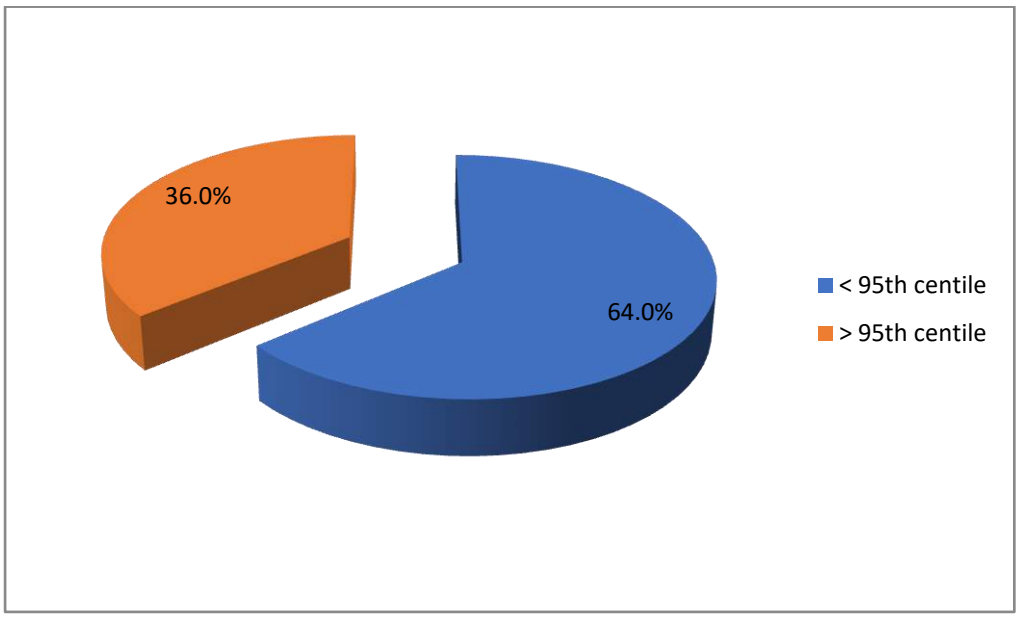


FIGURE 15- DISTRIBUTION ACCORDING TO UTERINE ARTERY PULSATILE INDEX (UA- PI)

b- UTERINE ARTERY PULSATILE INDEX (UtA-PI)

Distribution of patients according to uterine artery pulsatile index.

UTERINE ARTERY Pulsatile Index	No. of cases (n=297)	Percentage
< 95th centile	176	59.3%
> 95th centile	121	40.7%
Total	297	100.0%

TABLE 18- DISTRIBUTION ACCORDING TO UTERINE ARTERY PULSATILE INDEX

In our study, Uterine Artery PI (<95th percentile and >95th percentile) was 176 (59.3%) and 121 (40.7%) respectively

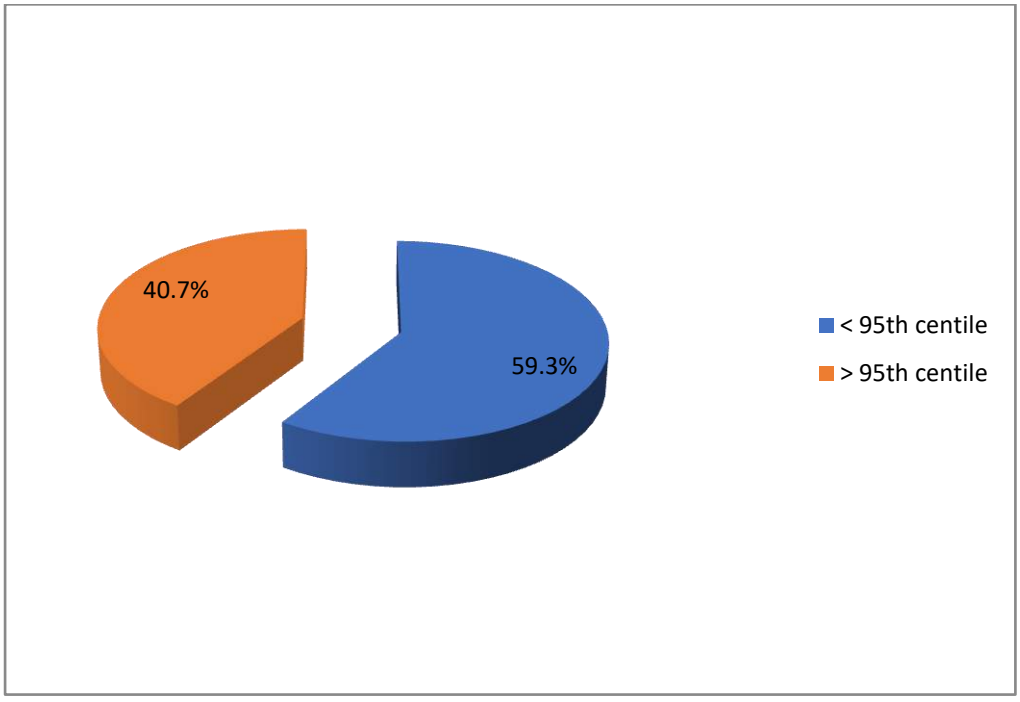


FIGURE 16- DISTRIBUTION OF PATIENTS ACCORDING TO UMBILICAL ARTERY PULSATILE INDEX (UA- PI)

c- MIDDLE CEREBRAL ARTERY Pulsatile index(MCA- PI)

Distribution of patients according to Middle cerebral artery pulsatile index

MIDDLE CEREBRAL ARTERY Pulsatile index (MCA- PI)	No. of Cases (n=297)	Percentage
< 5th centile	64	21.5%
> 5th centile	233	78.5%
Total	297	100.0%

TABLE 19- DISTRIBUTION ACCORDING TO MIDDLE CEREBRAL ARTERY PULSATILE INDEX

In our study, Middle Cerebral Artery PI of (<5th percentile and >5th percentile) was 6 4(21.5%) and 233 (78.5%) respectively.

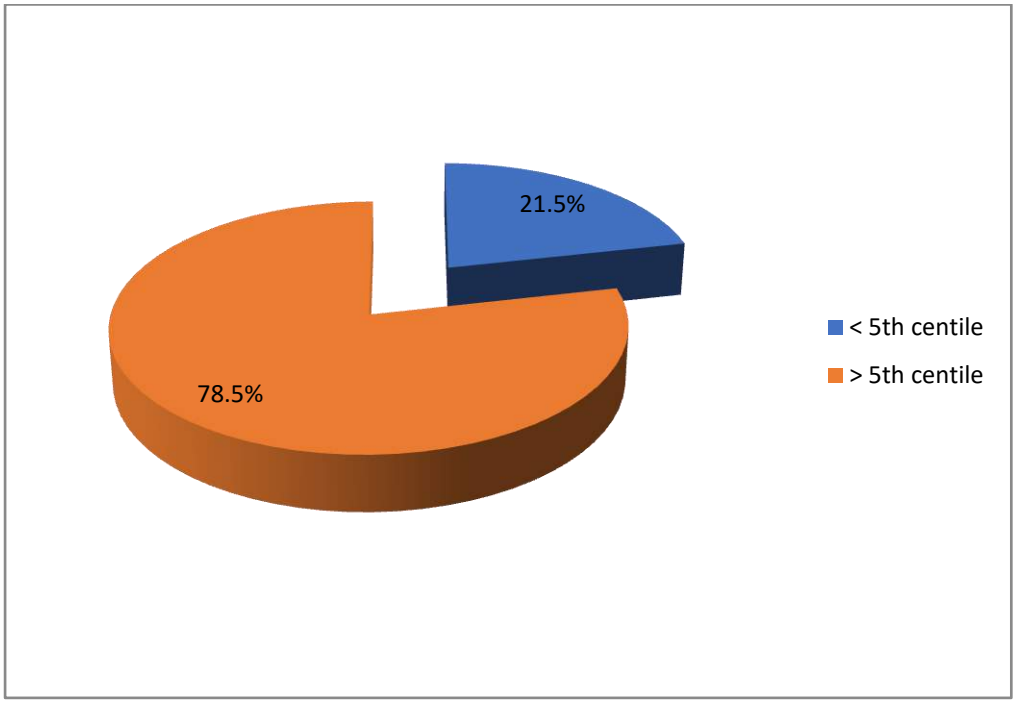


FIGURE 17- DISTRIBUTION OF PATIENTS ACCORDING TO MIDDLE CEREBRAL ARTERY PULSATILE INDEX (UA- PI)

IV - Distribution of women according to the period of gestation at the time of delivery (weeks)

POG at delivery (weeks)	No. of cases (n=297)	Percentage
37-37+6	136	45.8%
38-38+6	157	52.9%
39-39+6	4	1.3%

TABLE 20- DISTRIBUTION ACCORDING TO THE PERIOD OF GESTATION AT THE TIME OF DELIVERY (WEEKS)

In our study out of 297 patients, 136 (45.8%) patients delivered between 37-37+6 weeks while 157 (52.9%) patients delivered between 38-38+6weeks and 04 (1.3%) patients delivered between 39-39+6 weeks. Majority of the patients delivered between 38-38+6 weeks.

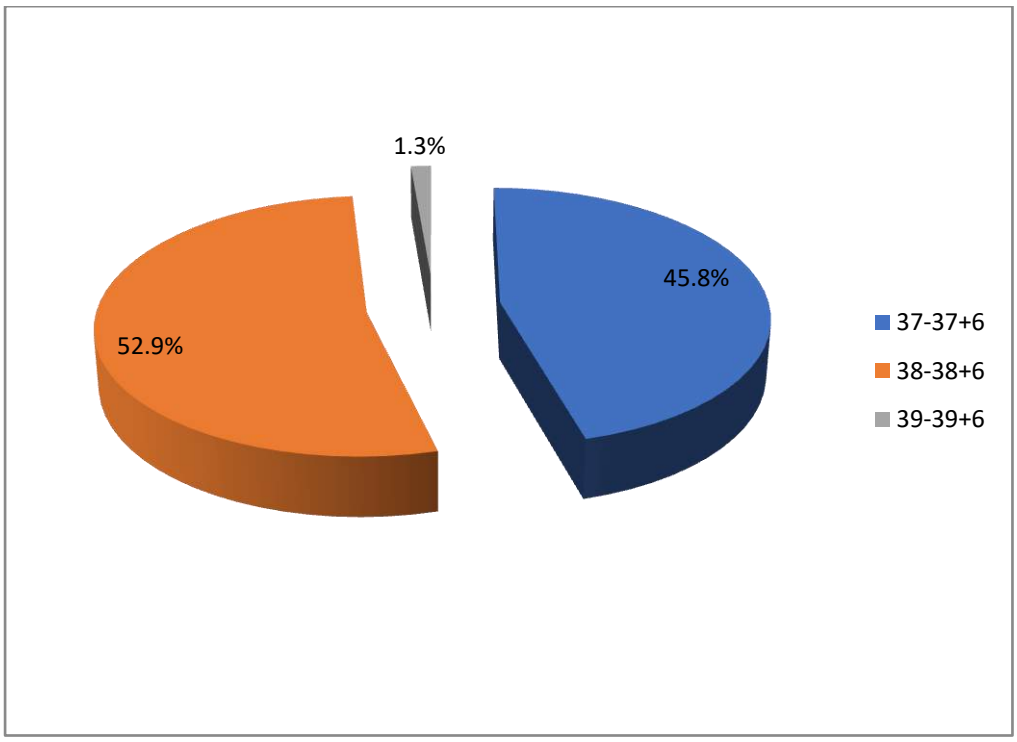


FIGURE 18- DISTRIBUTION ACCORDING TO PERIOD OF GESTATION AT DELIVERY

V- Distribution of patients according to the mode of delivery

Mode of delivery	No. of cases (n=297)	Percentage
LSCS	135	45.5%
VD	162	54.5%
Instrumental	0	0.0%
Total	297	100.0%

TABLE 21- DISTRIBUTION ACCORDING TO THE MODE OF DELIVERY

In our study out of 297 patients, 135 (45.5%) patients underwent caesarean delivery (LSCS) while 162 (54.5%) patients delivered vaginally (VD) and none had instrumental delivery .Majority of the patients delivered vaginally.

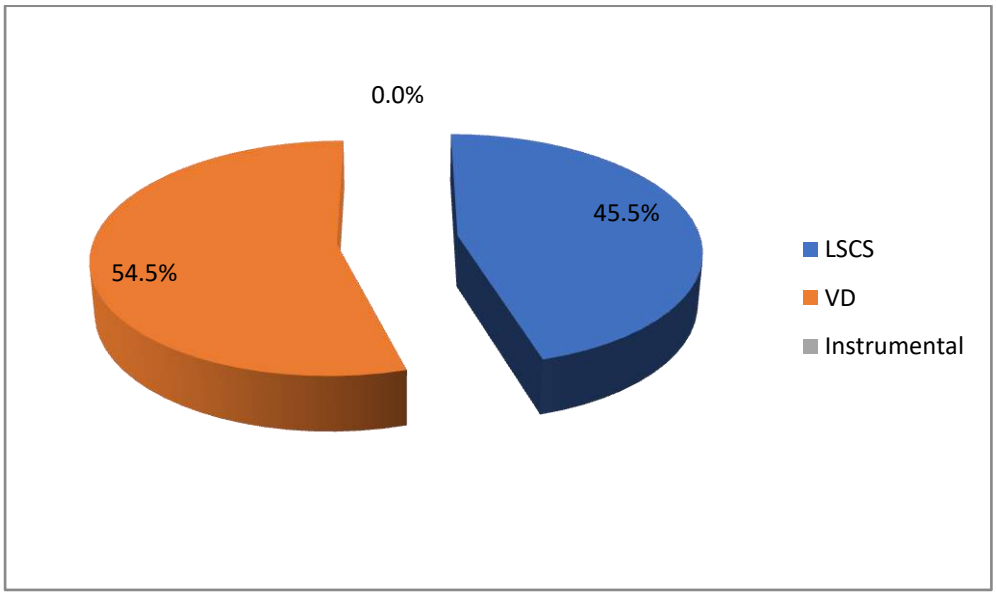


FIGURE 19- DISTRIBUTION ACCORDING TO MODE OF DELIVERY

B- FOETAL PARAMETERS.

1. Distribution of women under study according to the baby weight (kg)

Weight	No. of cases(n=297)	Percentage
< 2500 gm (<2.5 kg)	42	14.1%
2500-3000 gm (2.5-3 kg)	194	65.3%
> 3000 gm (>3 kg)	61	20.5%
Total	297	100.0%

TABLE 22- DISTRIBUTION UNDER STUDY ACCORDING TO THE BABY WEIGHT (KG)

In our study out of 297 patients 42 (14.1%), 194 (65.3%) and 61 (20.5%) babies had weight in the range of <2.5 kg , 2.5-3 kg and >3 kg respectively.

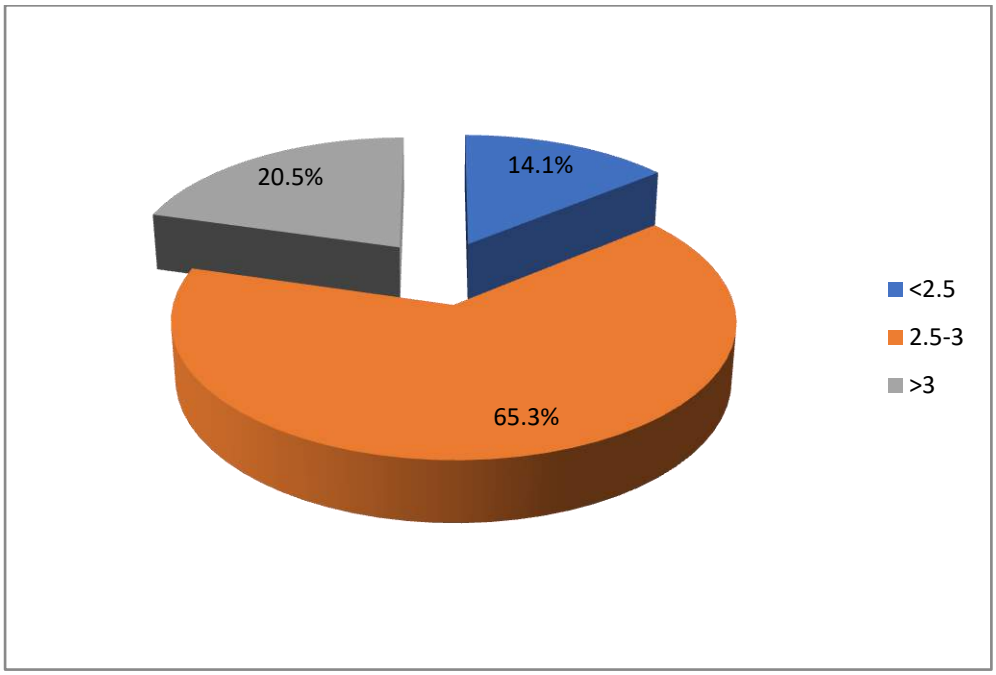


FIGURE 20- DISTRIBUTION ACCORDING TO BABIES WEIGHT

2. Distribution of patients according to the sex of the baby

Foetal Sex	No. of cases (n=297)	Percentage
Female	182	61.3%
Male	115	38.7%
Total	297	100.0%

TABLE 23- DISTRIBUTION ACCORDING TO THE SEX OF THE BABY

In our study out of 297 patients 182 (61.3%) patients delivered female baby while 115 (38.7%) patients delivered male babies. Majority were female babies.

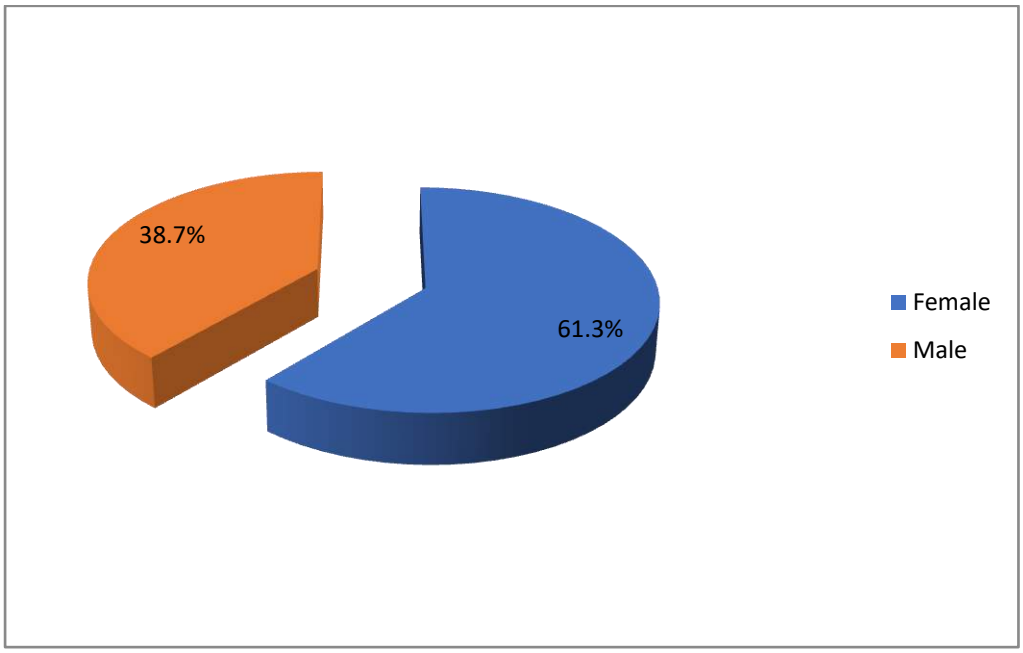


FIGURE 21- DISTRIBUTION OF PATIENTS ACCORDING TO SEX OF BABY

3. Distribution of babies according to the APGAR score at 1 min and 5 min of birth.

	APGAR SCORE	No. of cases (n=297)	Percentage
Apgar at 1 min	6	71	23.9 %
	8	226	76.1 %
Apgar at 5 min	8	71	23.9 %
	9	226	76.1 %
Total		297	100.0 %

TABLE 24- DISTRIBUTION ACCORDING TO THE APGAR SCORE AT 1 MIN AND 5 MIN OF BIRTH

In our study out of 297 babies the apgar score at 1 min was 6 and 8 in 71 (23.9%) and 226 (76.1%) babies while the apgar at 5 min was 8 and 9 in 71 (23.9%) and 226 (76.1%) respectively.

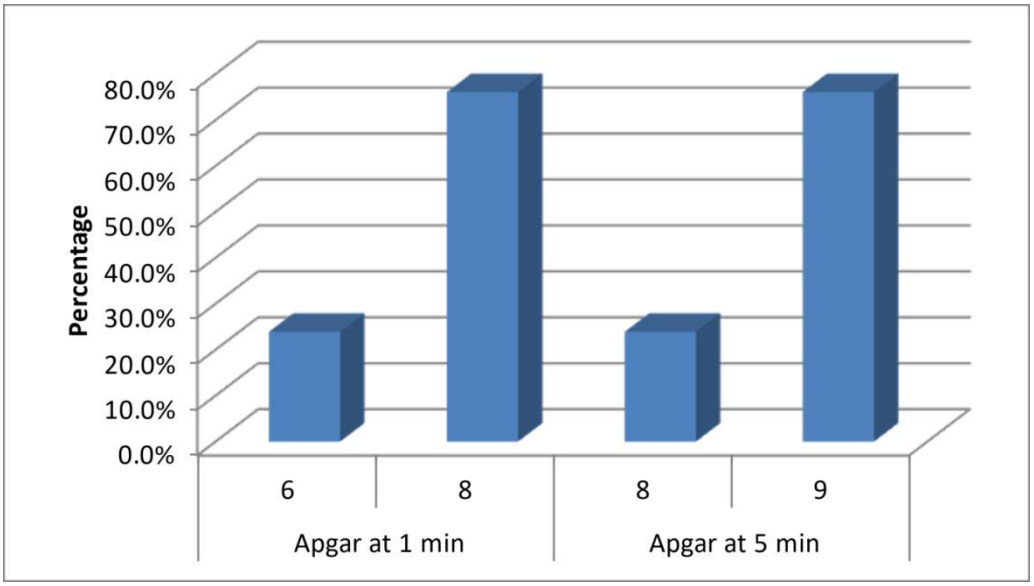


FIGURE 22- DISTRIBUTION OF PATIENTS ACCORDING TO APGAR SCORE

4. Distribution of patients according to NICU admission

NICU ADMISSION	No. of cases(n=297)	Percentage
Yes	81	27.3%
No	216	72.7%
Total	297	100.0%

TABLE 25- DISTRIBUTION ACCORDING TO NICU ADMISSION

In our study out of 297 patients, 81 (27.3%) had NICU admission while 216 (72.7%) did not require NICU admission.

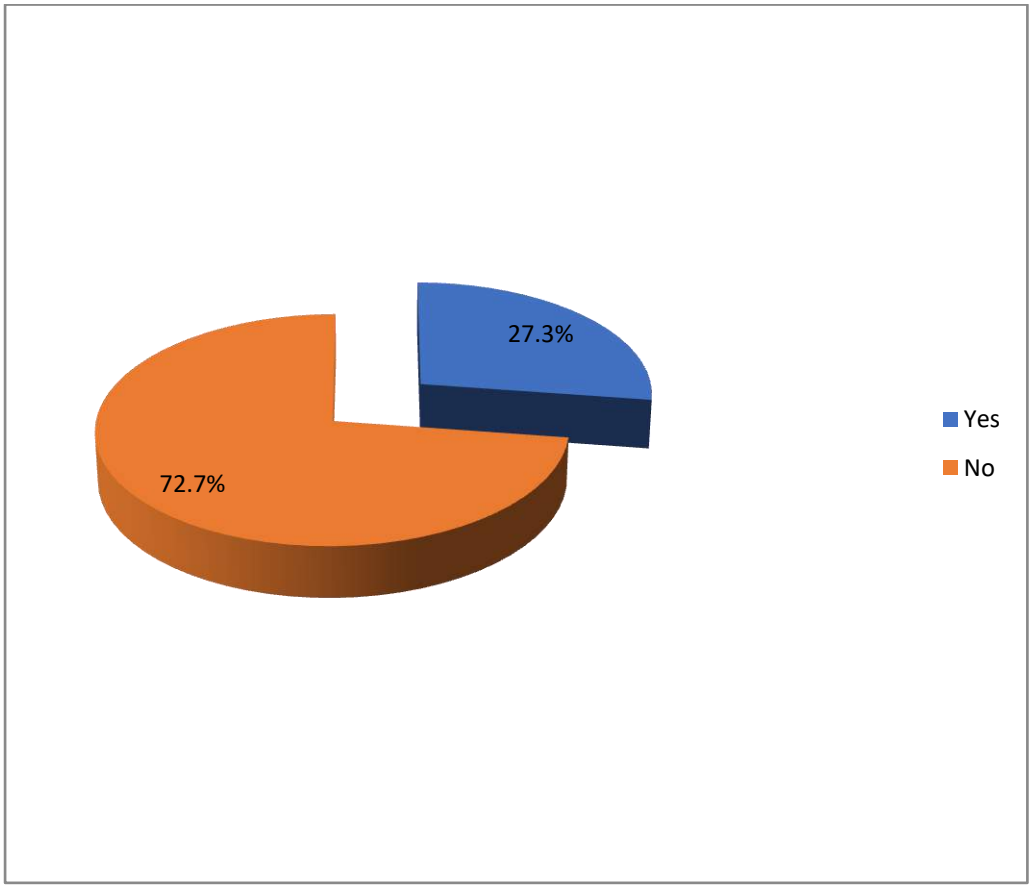


FIGURE 23- DISTRIBUTION OF PATIENTS ACCORDING TO NICU ADMISSION

C- Comparison of Maternal and Foetal Parameters in Both the Group.

According to the foetal weight, patients (n=297) were divided into GROUP A and GROUP B

Group A - Patients who delivered neonates with weight less than 10th centile (SGA foetus) n =42

Group B - Patients who delivered neonates with weight more than 10th centile (AGA foetus) n= 255

1. Age wise distribution between group A and group B

Age group in years (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
< 25	2	4.8%	15	5.9%	17	0.084	0.733
26-30	25	59.5%	164	64.3%	189	23.018	0.0001
>30	15	35.7%	76	29.8%	91	0.593	0.442
Total	42	100 %	255	100%	297		

TABLE 26- AGE WISE DISTRIBUTION BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 2(4.8%) vs 15(5.9%) were <25 years of age in group A and group B respectively with p value 0.733 which is statistically insignificant.

Twenty five (59.5%) vs 164 (64.3%) patients belong to age group 26-30 years in group A and group B respectively with p value 0.0001 which is statistically significant

Fifteen (35.7%) vs 76 (29.8%) patients belong to age >30 years in group A and group B respectively with p value 0.442 which is statistically insignificant

Majority of the patients in Group A and Group B were in the range of 26-30 years.

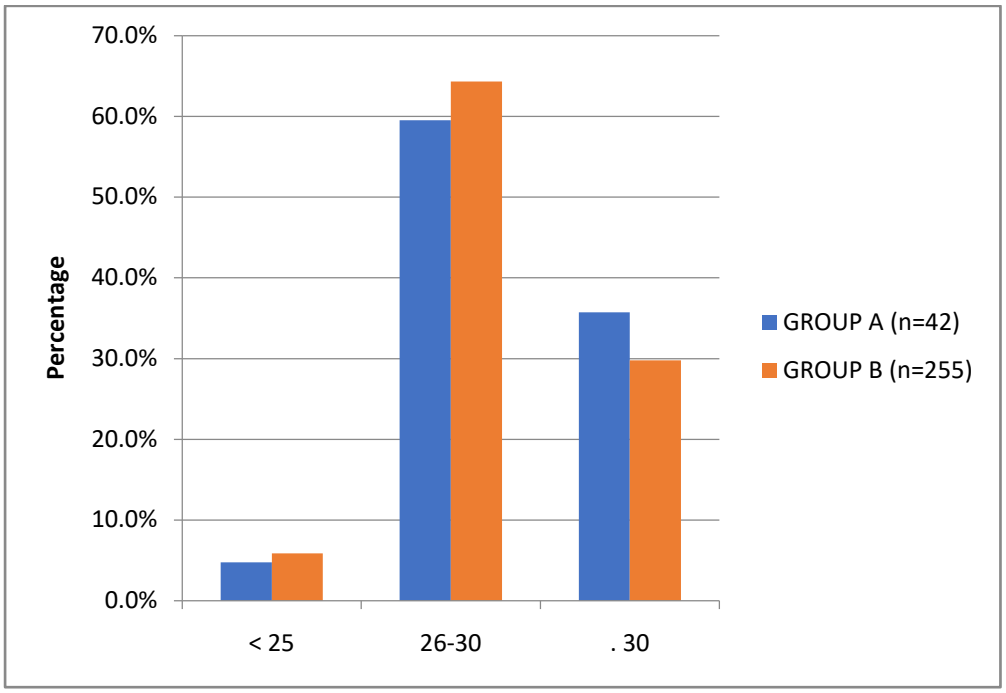


FIGURE 24- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO AGE

2. Distribution of women under study according to parity between Group A and Group B

Parity (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
Primigravida	22	52.4%	80	31.4%	102	7.058	0.008
Multigravida	20	47.6%	175	68.6%	195		
Total	42	100%	255	100%	297		

TABLE 27- AGE WISE DISTRIBUTION BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 22 (52.4%) vs 80 (31.4%) were primigravida in group A and group B respectively.

Twenty (47.6%) vs 175 (68.6%) were multigravida in group A and group B respectively with p value 0.008 which is statistically significant Majority of patients in Group A were Primigravida and in Group B multigravida.

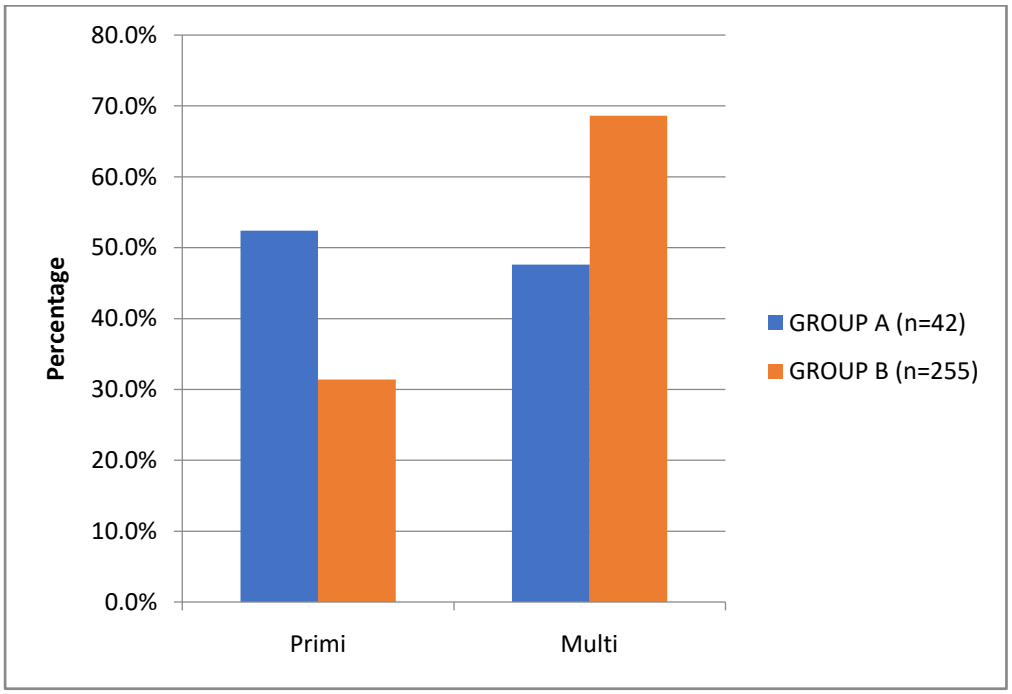


FIGURE 25- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO PARITY

3. Distribution of women under study according to Occupation between Group A and Group B

Occupation (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
Employed	14	33.3%	211	82.7%	225		
Unemployed	28	66.7%	44	17.3%	72		
Total	42	100.0%	255	100.0%	297	47.939	0.001

TABLE 28- DISTRIBUTION UNDER STUDY ACCORDING TO OCCUPATION BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 14(33.3%) vs 211(82.7%) were employed in group A and group B respectively

Twenty eight (66.7%) vs 44 (17.3%) were unemployed in group A and group B respectively with p value 0.001 which is statistically significant.

Majority of patients in Group A were unemployed and Group B were employed.

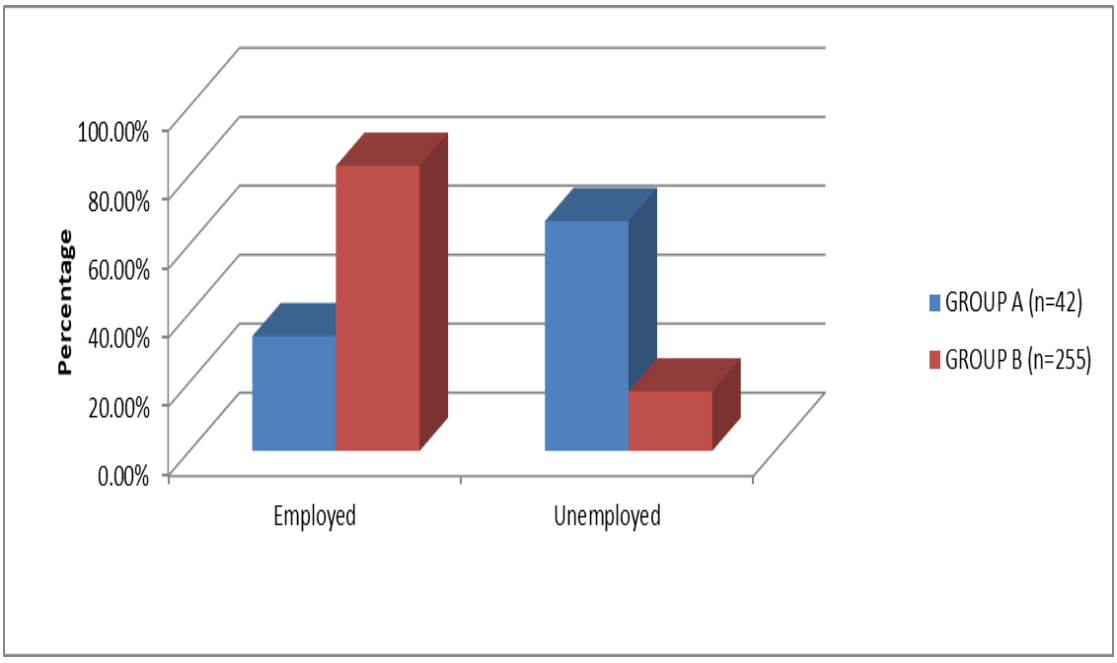


FIGURE 26- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO OCCUPATION

4. Distribution of women under study according to Protein and calorie intake between Group A and Group B.

Protein calories intake (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
Adequate	15	35.7%	230	90.2%	245	74.11	0.0001
Inadequate	27	64.3%	25	9.8%	52		
Total	42	100.0%	255	100.0%	297		

TABLE 29- DISTRIBUTION UNDER STUDY ACCORDING TO PROTEIN AND CALORIE INTAKE BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 15 (35.7%) vs 230 (90.2%) had adequate Protein and calorie intake in group A and group B respectively

Twenty seven (64.3%) vs 25 (9.8%) had inadequate Protein and calorie intake in group A and group B respectively with p value 0.0001 which is statistically significant.

Majority of patients in Group A had inadequate protein calorie intake and in Group B had adequate protein and calorie intake.

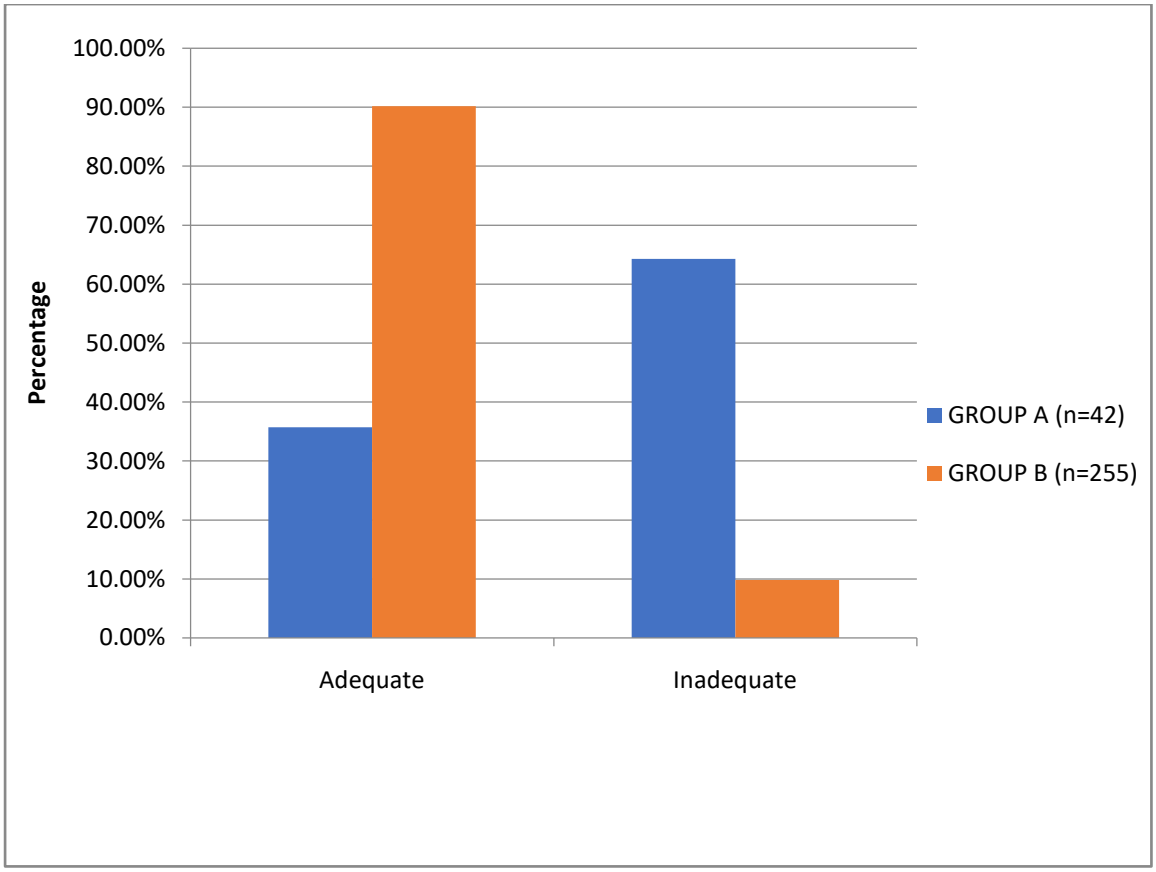


FIGURE 27- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO PROTEIN AND CALORIE INTAKE.

5. Distribution of women under study according to Education between Group A and Group B.

Education (n=297)	GROUP A		GROUP B (n=255)				
	(n=42)	Percentage	(n=255)	Percentage	Total	Chi-square value	p-value
Graduation	9	21.4%	150	58.8%	159	20.272	0.001
Post graduation	1	2.4%	43	16.9%	44	5.996	0.014
Under Graduation	32	76.2%	62	24.3%	94	44.861	0.001
Total	42	100.0%	255	100.0%	297		

TABLE 30- DISTRIBUTION UNDER STUDY ACCORDING TO EDUCATION BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 9 (21.4%) vs 150 (58.8%) were graduate group A and group B respectively with p value 0.001 which is statistically significant.

One (2.4%) vs 43 (16.9%) were post graduate in group A and group B respectively with p value 0.014 which is statistically significant.

Thirty two (76.2%) vs 62 (24.3%) were under graduate in group A and group B respectively with p value 0.001 which is statistically significant.

Majority of patients in Group A was Undergraduate and in Group B was Graduate.

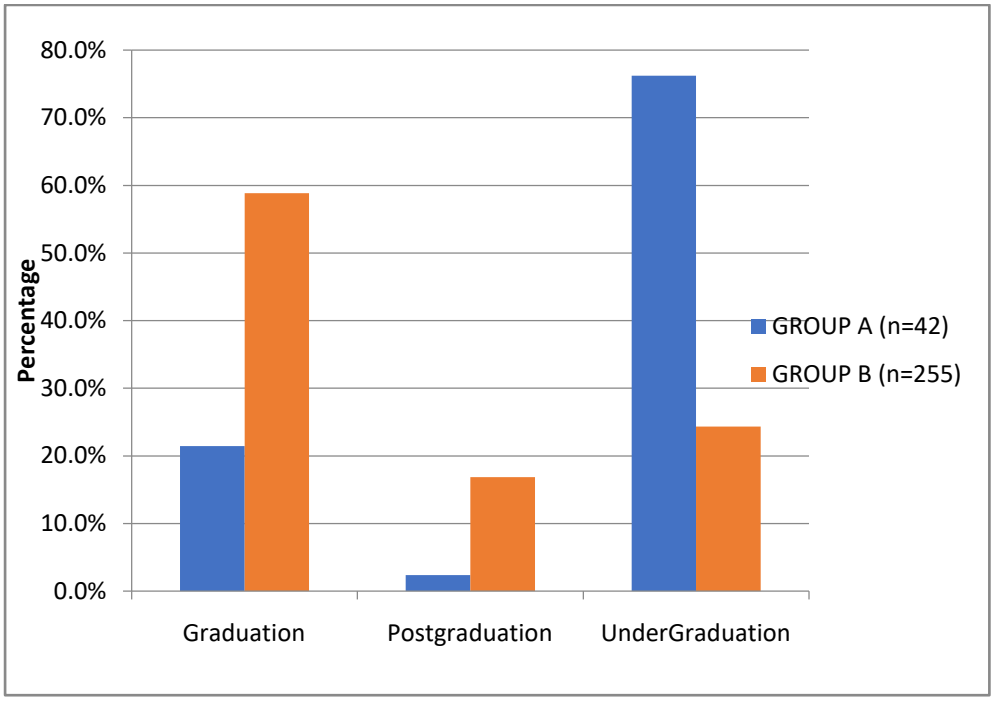


FIGURE 28- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO EDUCATION

6. Distribution of women in Group A and Group B, according to Second Trimester Scan biometry.

Second Trimester Scan biometry <10th percentile (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
Femur length(FL)	31	73.8%	101	39.6%	132	17.084	0.001
Abdominal circumference (AC)	32	76.2%	77	30.2%	109	32.838	0.001
Head circumference (HC)	31	73.8%	76	29.8%	107	30.299	0.0001
Estimated foetal weight (EFW)	31	73.8%	83	32.5%	114	25.957	0.0001

TABLE 31- DISTRIBUTION IN GROUP A AND GROUP B, ACCORDING TO SECOND TRIMESTER SCAN BIOMETRY

In our study out of total 297 patients, 31(73.8%) vs 101(39.6%) patient had FL <10th centile in group A and group B respectively with p value 0.001 which is statistically significant.

Thirty two (76.2%) vs 77 (30.2%) patient had AC <10th centile in group A and group B respectively with p value 0.001 which is statistically significant.

Thirty one (73.8%) vs 76 (29.8%) patient had HC<10th centile group A and group B respectively with p value 0.0001 which is statistically significant.

Thirty one (73.8%) vs 83 (32.5%) patient had EFW<10th centile group A and group B respectively with p value 0.0001 which is statistically significant.

Majority of the patient in Group A had ultrasound biometry <10th centile and in Group B had > 10th centile.

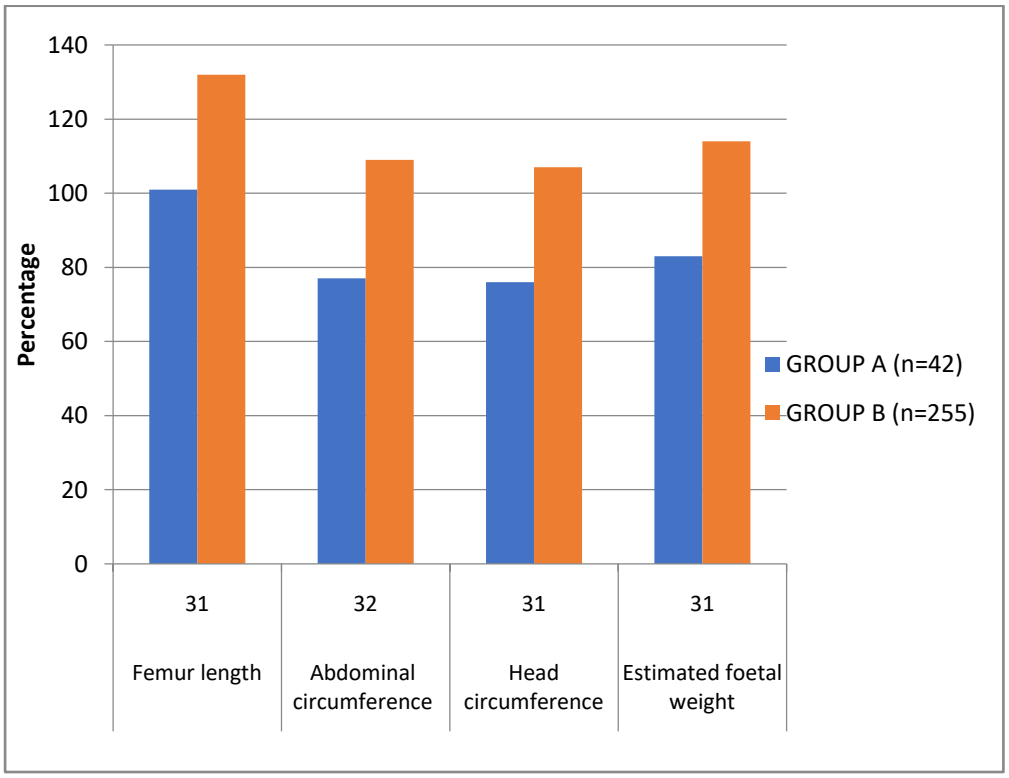


FIGURE 29- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO FOETAL BIOMETRY

7. Distribution of women in group a and group b, according to Second Trimester Scan Doppler parameters.

a. Umblical artery pulsatile index , between Group A and Group

Second Trimester Scan (n=297)	GROUP A (n=42)		GROUP B (n=255)		Total	Chi-square value	p-value
UMBLICAL ARTERY PI	No. of cases	Percentage	No. of cases	Percentage			
< 95th centile	32	76.2%	212	83.1%	244	1.187	0.276
> 95th centile	10	23.8%	43	16.9%	53		
Total	42	100.0%	255	100.0%	297		

TABLE 32- UMBLICAL ARTERY PULSATILE INDEX , BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 32 (76.2%) vs 212 (83.1%) patient had Umblical artery pulsatile index <95th centile in group A and group B.

Ten (23.8%) vs 43(16.9%) patient had Umblical artery pulsatile index >95th centile centilein group A and group B respectively with p value 0.276 which is statistically insignificant.

Majority of the patients in Group A and Group B had Umblical artery PI<95th centile.

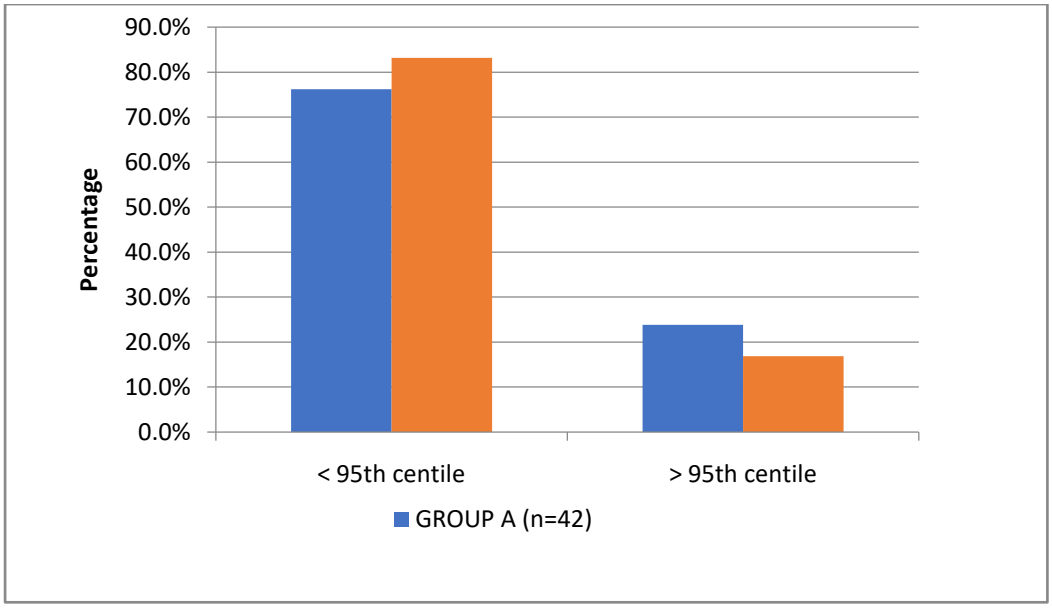


FIGURE 30- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO UMBLICAL ARTERY PI

b. Uterine artery pulsatile index , between Group A and Group B

UTERINE ARTERY PI (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
< 95th centile	32	76.2%	229	89.8%	261	6.274	0.020
> 95th centile	10	23.8%	26	10.2%	36		
Total	42	100.0%	255	100%	297		

TABLE 33- UTERINE ARTERY PULSATILE INDEX, BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 32(76.2%) vs 229(89.8%) patient had Uterine artery pulsatile index <95th centile in group A and group B respectively.

In our study out of total 297 patients, 10(23.8%) vs 26(10.2%) patient had Uterine artery pulsatile index > 95th centile in group A and group B respectively with p value 0.020 which is statistically significant.

Majority of the patients in Group A and Group B had PI <95thcentile.

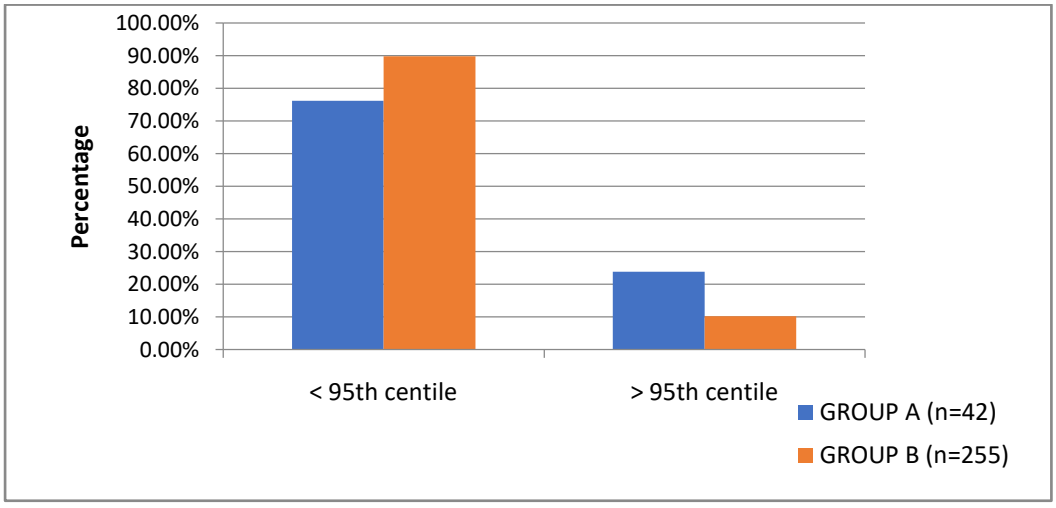


FIGURE 31- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO UTERINE ARTERY PI

c. Middle Cerebral artery pulsatile index , between Group A and Group B

Second Trimester Scan(n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
MCA PI	(n=42)	Percentage	(n=255)	Percentage			
< 5th centile	21	50.0%	38	14.9%	59	27.905	0.0001
> 5th centile	21	50.0%	217	85.1%	238		
Total	42	100.0%	255	100.0%	297		

TABLE 34- MIDDLE CEREBRAL ARTERY PULSATILE INDEX, BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 21(50%) vs 38 (14.9%) patient had middle cerebral artery pulsatile index <5th centile in group A and group B respectively.

Twenty one (50%) vs 217(85.1%) patient had middle cerebral artery pulsatile index >5th percentile in group A and group B respectively with p value 0.0001 which is statistically significant.

Majority of the patients had Middle cerebral artery PI >5thcentile.

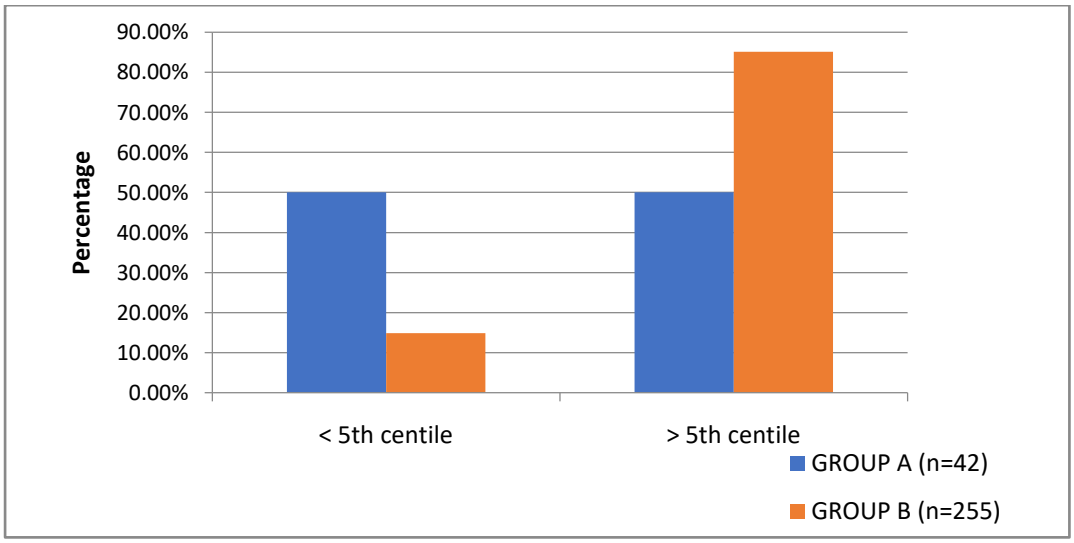


FIGURE 32- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO MIDDLE CEREBRAL ARTERY PI.

8. Distribution of the women in Group A and Group B according to Smphysio Fundal Height (SFH)corresponding to period of gestation

	Smphysio Fundal Height vs POG (n =297)	Group A		Group B		Total	Chi-square value	p-value
		(n=42)	Percentage	(n=255)	Percentage			
24 weeks	Corresponding	41	97.6%	253	99.2%	294	0.919	0.338
	Not Corresponding	1	2.4%	2	0.8%	3		
28 weeks	Corresponding	40	95.2%	248	97.3%	288	0.499	0.480
	Not Corresponding	2	4.8%	7	2.7%	9		
32 weeks	Corresponding	36	85.7%	232	91.0%	268	1.135	0.287
	Not Corresponding	6	14.3%	23	9.0%	29		
36 weeks	Corresponding	36	85.7%	225	88.2%	261	0.215	0.643
	Not Corresponding	6	14.3%	30	11.8%	36		
	Total	42	100.0%	255	100.0%	297		

TABLE 35- DISTRIBUTION IN GROUP A AND GROUP B ACCORDING TO SMPHYSIO FUNDAL HEIGHT (SFH) CORRESPONDING TO PERIOD OF GESTATION

In our study out of total 297 patients, 41(97.6%) vs 253 (99.2%) patient had Smphysio Fundal Height corresponding to period of gestation at 24 weeks in group A and group B respectively while 2 (0.8%) vs 7 (2.7%) patient had Smphysio Fundal Height not corresponding to period of gestation in group A and group B respectively with p value 0.338 which is statistically insignificant.

Forty (95.2%) vs 248 (97.3%) patient had Smphysio Fundal Height corresponding to period of gestation at 28 weeks in group A and group B respectively while 1(2.4%) vs 2 (0.8%) patient had Smphysio Fundal Height not corresponding to period of gestation in group A and group B respectively with p value 0.480 which is statistically insignificant.

Thirty six (85.7%) vs 232 (91%) patient had Smphysio Fundal Height corresponding to period of gestation at 32 weeks in group A and group B respectively while 6 (14.3%) vs 23 (9%) patient had Smphysio Fundal Height not corresponding to period of gestation in group A and group B respectively with p value 0.287 which is statistically insignificant.

Thirty six (85.7%) vs 225 (88.2%) patient had Smphysio Fundal Height corresponding to period of gestation at 36w weeks in group A and group B respectively while 6 (14.3%) vs 30 (11.8%) patient had Smphysio Fundal Height not corresponding to period of gestation in group A and group B respectively with p value 0.480 which is statistically insignificant

Majority of patients in Group A and Group B had Smphysio fundal height corresponding to period of gestation.

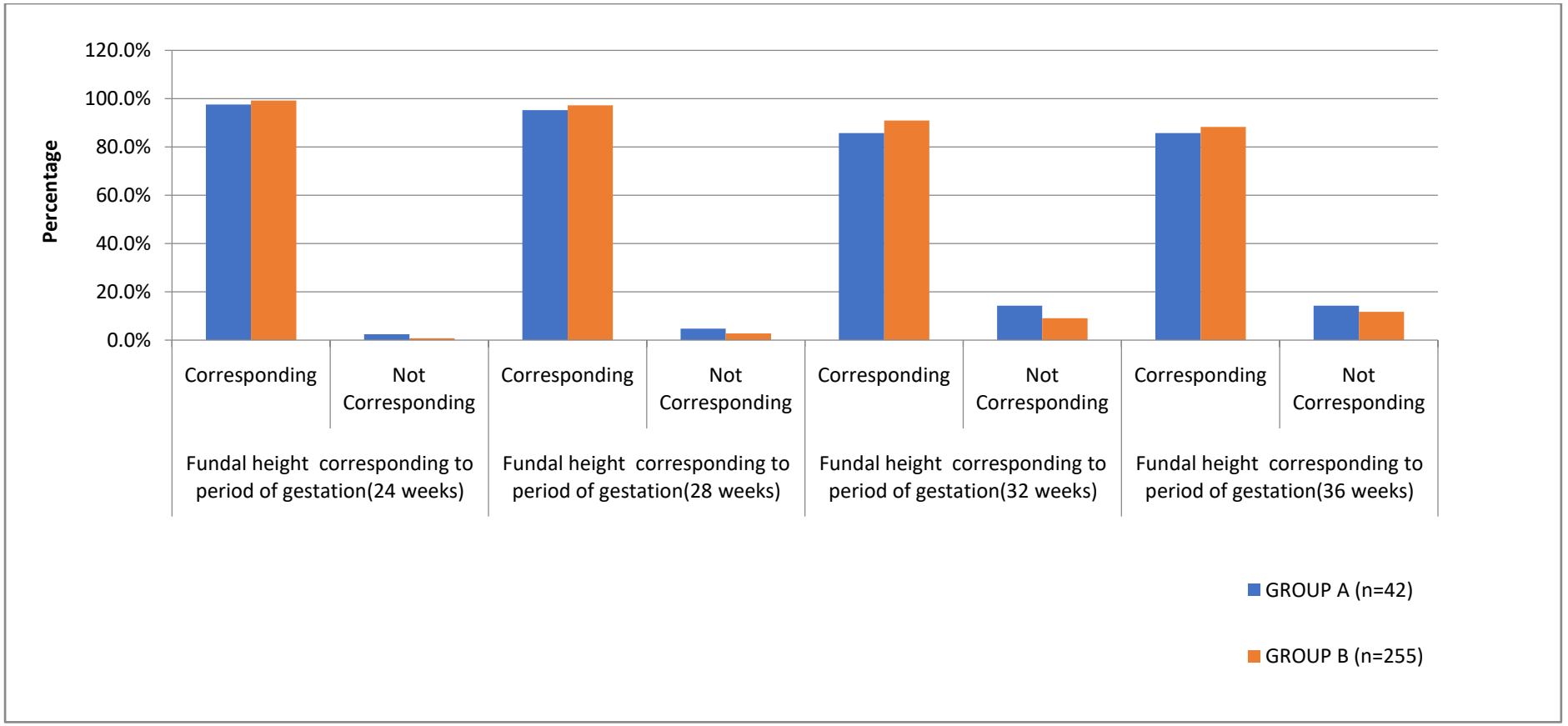


FIGURE 33- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO SYMPHYSIO FUNDAL HEIGHT

9. Distribution of women in Group A and Group B, according to Third Trimester Scan biometry p (percentile).

Third Trimester Scan (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
< 10th centile	(n=42)	Percentage	(n=255)	Percentage			
Femur length	20	47.6%	54	21.2%	74	13.478	0.0001
Abdominal circumference	27	64.3%	33	12.9%	60	58.971	0.0001
Head circumference	19	45.2%	63	24.7%	82	7.606	0.009
Estimated foetal weight	24	57.1%	34	13.3%	58	44.041	0.0001

TABLE 36- DISTRIBUTION IN GROUP A AND GROUP B, ACCORDING TO THIRD TRIMESTER SCAN BIOMETRY P (PERCENTILE)

In our study out of total 297 patients, 20 (47.6%) vs 54 (21.2%) patient had (FL) <10th centile in group A and group B respectively with p value 0.0001 which is statistically significant.

Twenty seven (64.3%) vs 33 (12.9%) patient had (AC) <10th centile in group A and group B respectively with p value 0.0001 which is statistically significant.

Nineteen (45.2%) vs 63 (24.7%) patient had (HC) <10th centile group A and group B respectively with p value 0.009 which is statistically significant

Twenty four (57.1%) vs 34(13.3%) patient had (EFW) <10th centile group A and group B respectively with p value 0.0001 which is statistically significant.

Majority of the patients in group a had ultrasound biometry <10th centile and in group B >10th centile.

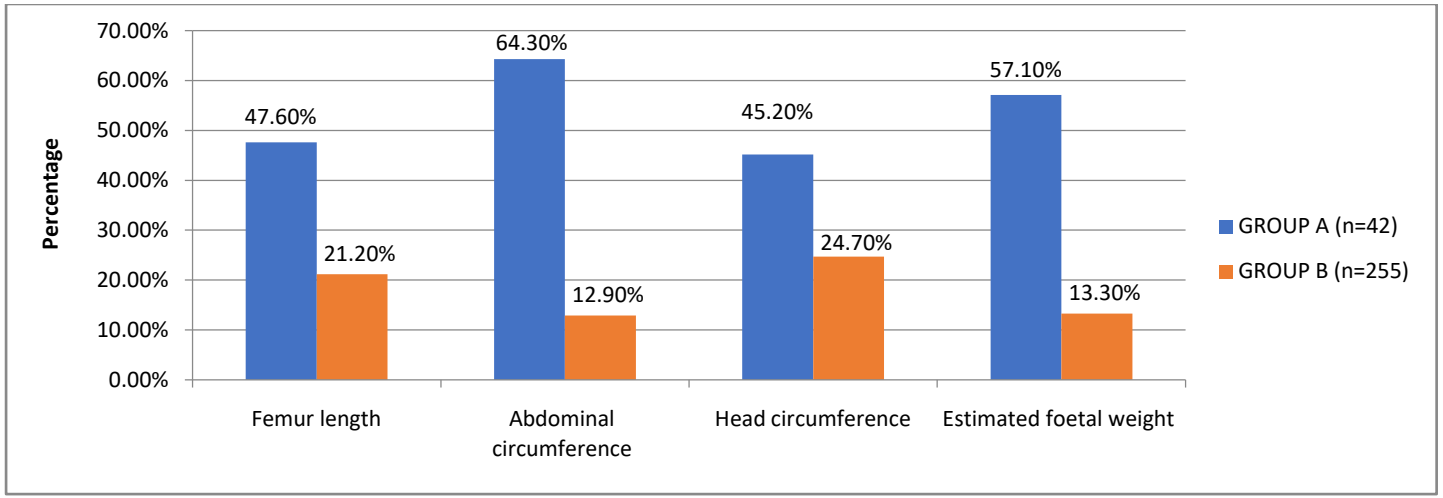


FIGURE 34- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO FOETAL BIOMETRY.

10- Distribution of women in group A and group B, according to Third Trimester Scan Doppler parameters.

a- Umblical artery pulsatile index , between Group A and Group B

Third Trimester Scan(n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
UMBLICAL ARTERY PI	(n=42)	Percentage	(n=255)	Percentage			
< 95th centile	21	50.0%	169	66.3%	190	4.144	0.056
> 95th centile	21	50.0%	86	33.7%	107		
Total	42	100.0%	255	100.0%	297		

TABLE 37- UMBLICAL ARTERY PULSATILE INDEX, BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 21 (50%) vs 169 (66.3%) patient had Umblical artery pulsatile index <95th centile in group A and group B respectively.

Twenty one (50%) vs 86(33.7%) patient had Umblical artery pulsatile index > 95th centile in group A and group B respectively with p value 0.056 which is statistically insignificant.

Majority of the patients in Group A and Group B had Umblical artery PI< 95th centile.

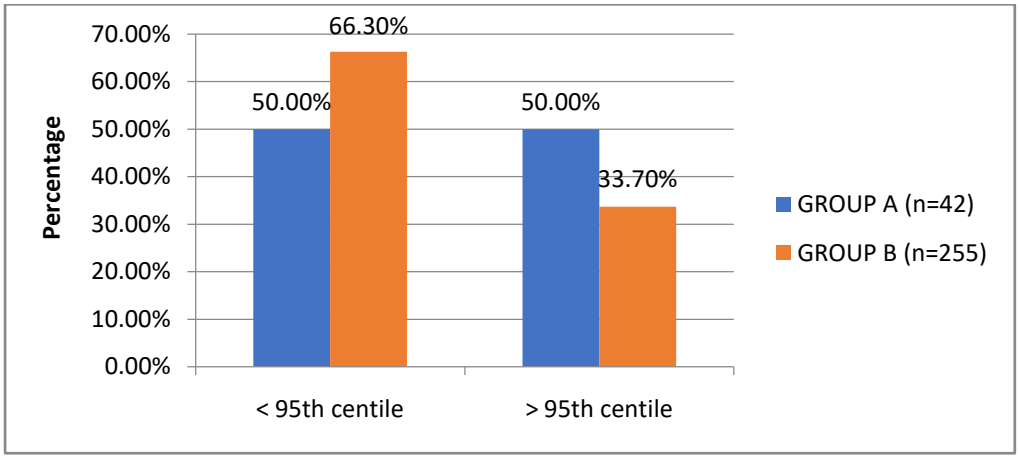


FIGURE 35-DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO UMBLICAL ARTERY PI

b- Uterine artery pulsatile index , between Group A and Group B

Third Trimester Scan(n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
UTERINE ARTERY PI	(n=42)	Percentage	(n=255)	Percentage			
< 95th centile	23	54.8%	153	60.0%	176	0.410	0.522
> 95th centile	19	45.2%	102	40.0%	121		
Total	42	100.0%	255	100.0%	297		

TABLE 38- UTERINE ARTERY PULSATILE INDEX, BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 23(54.8%) vs 153(60%) patient had Uterine artery pulsatile index <95th centile in group A and group B respectively.

19 (45.2%) vs 102(40%) patient had Uterine artery pulsatile index >95th centile in group A and group B respectively with p value 0.522 which is statistically insignificant.

Majority of the patients in Group A and Group B had Uterine artery PI<95th centile.

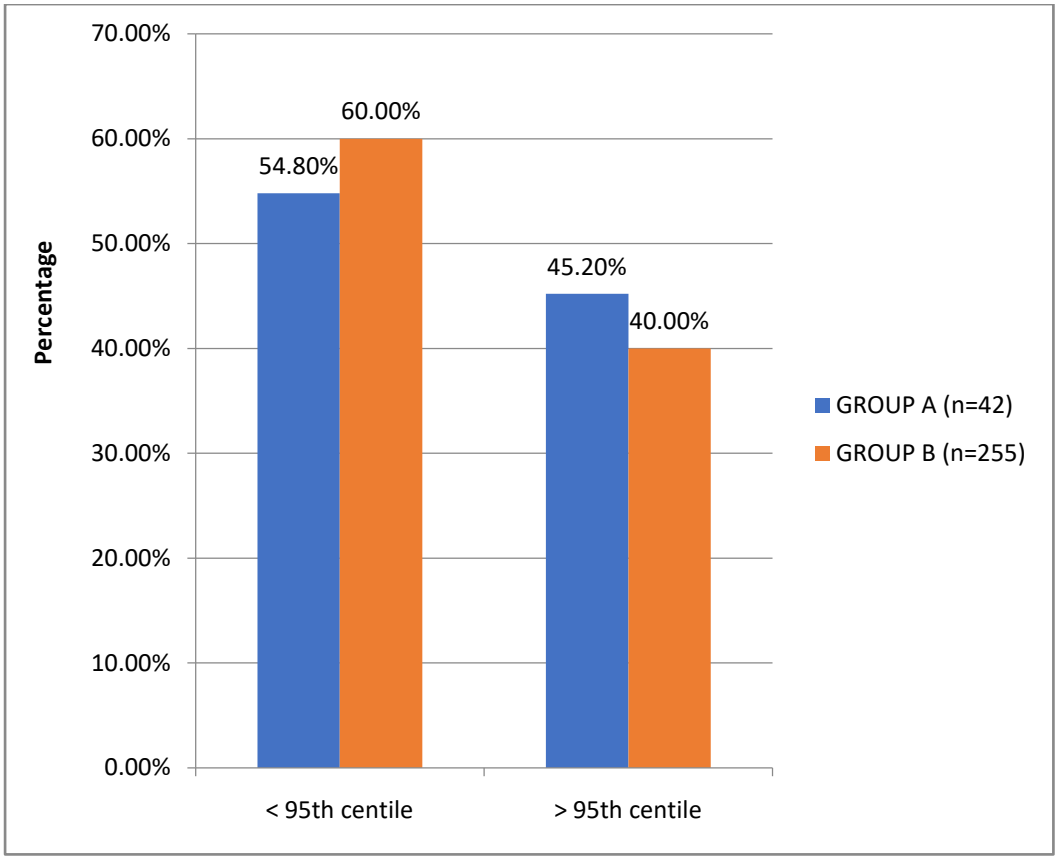


FIGURE 36- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO UTERINE ARTERY PI

c- Middle Cerebral artery pulsatile index , between Group A and Group B

Third Trimester Scan(n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
MCA PI	(n=42)	Percentage	(n=255)	Percentage			
< 5th centile	32	76.2%	32	12.5%	64	86.395	0.0001
> 5th centile	10	23.8%	223	87.5%	233		
Total	42	100.0%	255	100.0%	297		

TABLE 39- MIDDLE CEREBRAL ARTERY PULSATILE INDEX, BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 32(76.2%) vs 32 (12.5%) patient had Middle Cerebral artery pulsatile index <5thcentile in group A and group B respectively.

Ten (23.8%) vs 223 (87.5%) patient had Middle Cerebral artery pulsatile index >5thcentile in group A and group B respectively with p value 0.0001 which is statistically significant.

Majority of the patients in Group A had PI <5th centile and Group B > 5th centile.

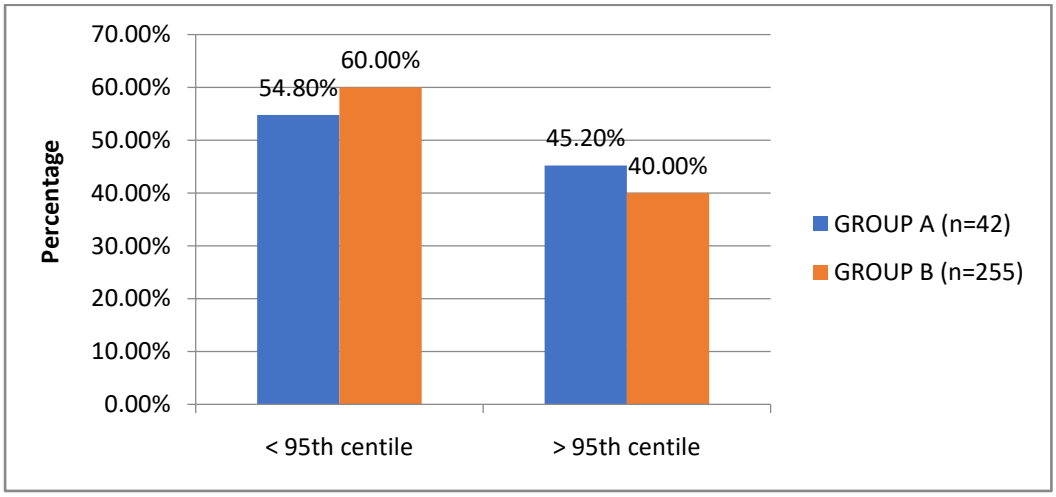


FIGURE 37- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO MIDDLE CEREBRAL ARTERY PI.

11 - Distribution of women according to the period of gestation at the time of delivery between group a and group b.

Period of Gestation at delivery (weeks) (n=297)	GROUP A		GROUP B				
	(n=42)	Percentage	(n=255)	Percentage	Total	Chi-square value	p-value
37-37+6	42	100.0%	94	36.9%	136	54.846	0.0001
38-38+6	0	0.0%	157	61.5%	157	51.845	0.0001
39-39+6	0	0.0%	4	1.6%	4	0.128	0.721
Total	42	100.0%	255	100%	297		

TABLE 40- DISTRIBUTION ACCORDING TO THE PERIOD OF GESTATION AT THE TIME OF DELIVERY BETWEEN GROUP A AND GROUP B.

In our study out of total 297 patients, 42 (100%) vs 94 (36.9%) patients delivered between 37-37+6 weeks in group A and group B respectively with p value 0.0001 which is statistically significant

Zero (0%) vs 157 (61.6%) patients delivered between 38-38+6 weeks in group A and group B respectively with p value 0.0001 which is statistically significant

Zero (0%) vs 4(1.6%) patients delivered between 39-39+6 weeks in group A and group B respectively with p value 0.721 which is statistically insignificant

Majority of the patients in Group A delivered between 37-37+6 weeks.

Majority of the patients in Group b delivered between 38-38+6 weeks.

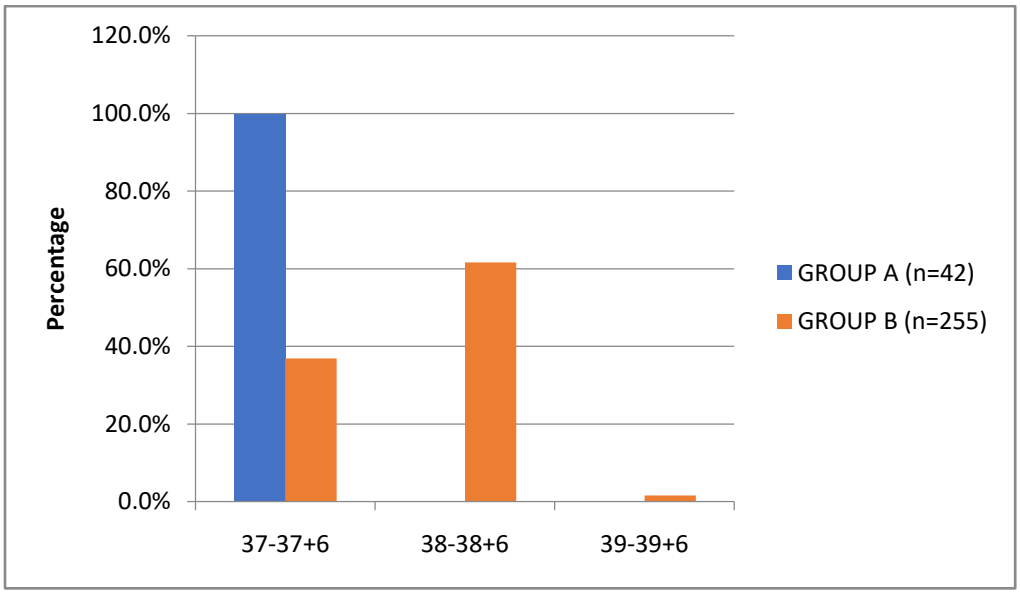


FIGURE 38- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO PERIOD OF GESTATION AT DELIVERY.

12 - Distribution of patients according to the mode of delivery between Group A and Group B

Mode of delivery (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
LSCS	24	57.1%	111	43.5%	135	2.695	0.101
VD	18	42.9%	144	56.5%	162		
Total	42	100 %	255	100%	297		

TABLE 41- DISTRIBUTION ACCORDING TO THE MODE OF DELIVERY BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 24(57.1%) vs 111 (43.5%) patients were delivered by caesarean (LSCS) in group A and group B respectively.

Eighteen (42.9%) vs 144 (56.5%) patients were delivered vaginally (VD) in group A and group B respectively with p value 0.101 which is statistically not significant.

Majority of the patients in Group A delivered by Caesarean (Lscs) while in Group B delivered vaginally (VD).

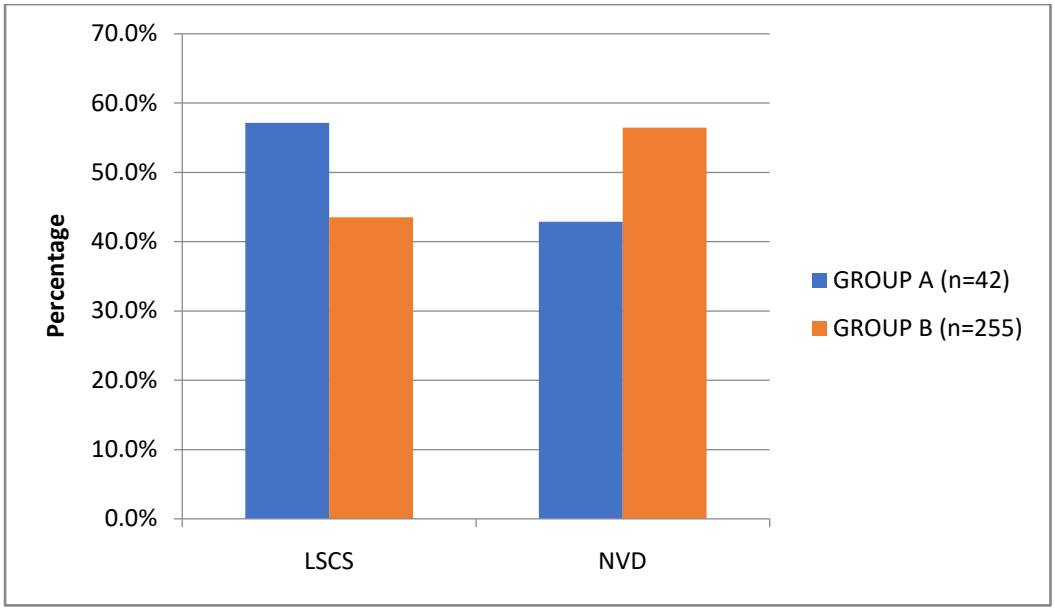


FIGURE 39- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO MODE OF DELIVERY.

13 - Distribution of the sex of the baby between Group A and Group B

Sex At Birth (N=297)	Group A		Group B		Total	Chi-square value	p-value
	(n=42)	Percentage	(n=255)	Percentage			
Female	23	54.8%	159	62.4%	182	0.876	0.349
Male	19	45.2%	96	37.6%	115		
Total	42	100 %	255	100 %	297		

TABLE 42- DISTRIBUTION THE SEX OF THE BABY BETWEEN GROUP A AND GROUP B

In our study out of total 297 patients, 23 (54.8%) vs 159 (62.4%) patients delivered female babies in group A and group B respectively.

Nineteen (45.2%) vs 96 (37.6%) patients delivered male babies in group A and group B respectively with p value 0.349 which is statistically not significant

Majority of the patients in Group A and Group B delivered female babies.

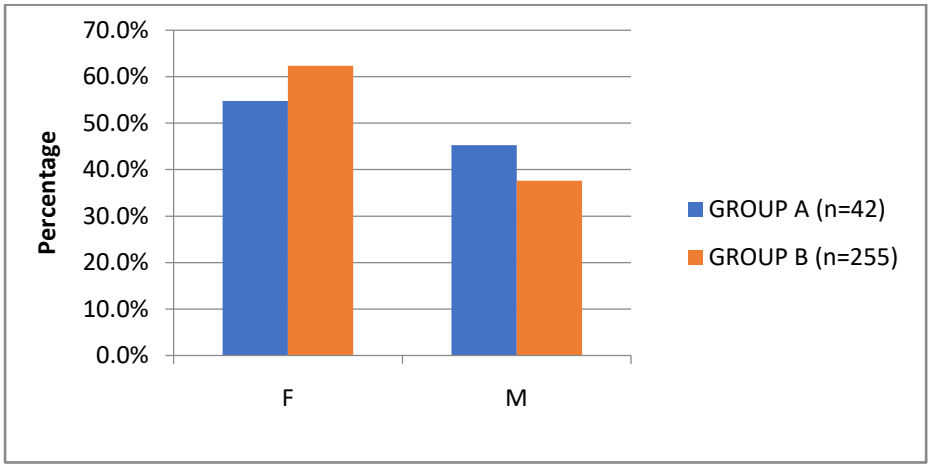


FIGURE 40- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO SEX OF BABY.

14 - Distribution of the baby according to APGAR score at 1 min and 5 min between Group A and Group B

n=297	APGAR SCORE	GROUP A		GROUP B		Total	Chi-square value	p-value
		(n=42)	Percentage	(n=255)	Percentage			
Apgar at 1 min	6	13	31.0%	58	22.7%	71	1.335	0.248
	8	29	69.0%	197	77.3%	226		
Apgar at 5 min	8	13	31.0%	58	22.7%	71	1.335	0.248
	9	29	69.0%	197	77.3%	226		
Total		42	100.0%	255	100.0%	297		

TABLE 43 - DISTRIBUTION ACCORDING TO APGAR SCORE AT 1 MIN AND 5 MIN BETWEEN GROUP A AND GROUP B

In our study out of total 297 babies, apgar score of 6 at 1 min was present in 13 (31%) vs 58 (22.7%) babies while score of 8 was present in 29 (69%) vs 197(77.37%) in group A and B respectively with p value of 0.248 which is statistically insignificant.

Thirteen (31%) vs 58 (22.7%) babies had apgar score of 8 at 5 min while score of 9 was present in 29 (69%) vs 197 (77.37%) in group A and B respectively with p value 0.248 which is statistically not significant.

Majority of the neonate in group a and b had apgar score 8, 9.

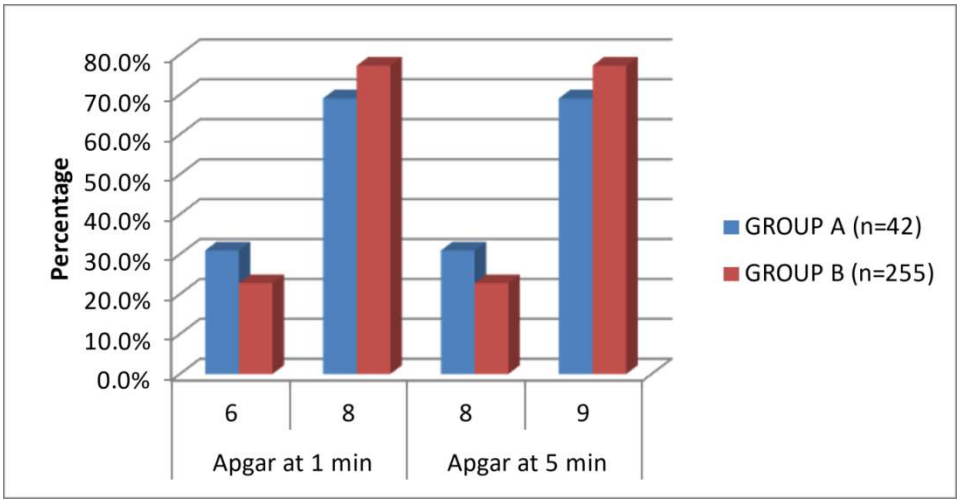


FIGURE 41- DISTRIBUTION OF PATIENTS IN GROUP ACCORDING TO APGAR SCORE.

15 - Distribution of patients between Group A and Group B according to NICU admission

	NICU Admission (n=297)	GROUP A		GROUP B		Total	Chi-square value	p-value
		(n=42)	Percentage	(n=255)	Percentage			
	Yes	16	38.1%	65	25.5	81		
	No	26	61.9%	190	74.5%	216		
Total		42	100.0%	255	100.0%	297	2.889	0.089

TABLE 44 - DISTRIBUTION BETWEEN GROUP A AND GROUP B ACCORDING TO NICU ADMISSION

In our study out of total 297 babies, 16 (38.1%) vs 65 (25.5%) babies had NICU admission in group A and group B respectively with p value 0.089 which is statistically not significant and the rest of the babies did not require any NICU admission.

Majority of the neonate In Group A and Group B did not have NICU admission

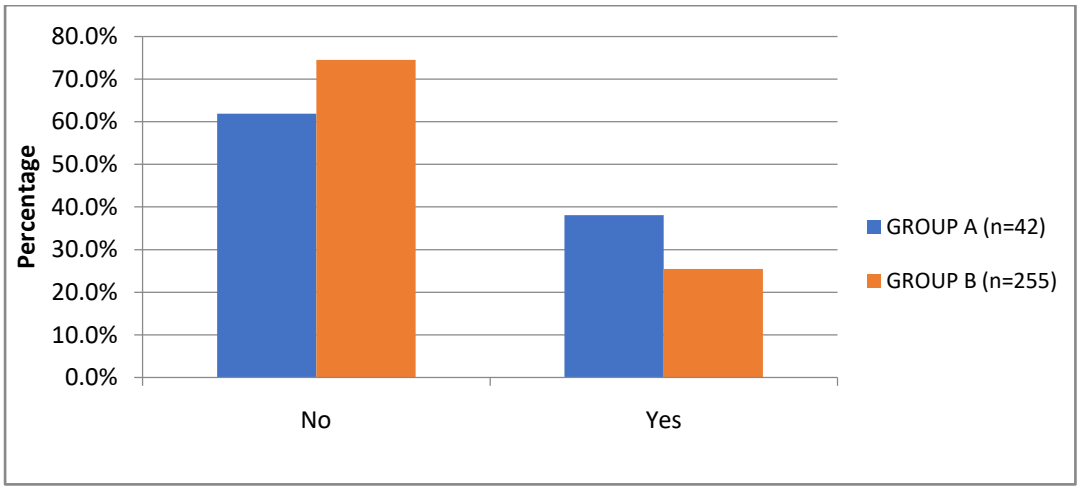


FIGURE 42- DISTRIBUTION IN GROUP ACCORDING TO NICU ADMISSION.

D - Diagnostic Performance of Different Parameters for Prediction of Small for Gestational AGE.

a- Diagnostic performance of symphysio fundal height for the prediction of small for gestational age.

SFH vs POG	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
24 weeks	2.38	99.2	33.33	86.05
28 weeks	4.76	97.25	22.22	86.11
32 weeks	14.29	90.98	20.69	86.57
36 weeks	14.29	88.24	16.6	86.21

TABLE 45- DIAGNOSTIC PERFORMANCE OF SYMPHYSIO FUNDAL HEIGHT FOR THE PREDICTION OF SMALL FOR GESTATIONAL AGE

Diagnostic performance of symphysio fundal height for the prediction of small for gestational age

Symphysio fundal height at 24 weeks for prediction of sga had sensitivity of 2.38%, specificity 99.2%, ppv 33.33%, and NPV 86.05%.

At 28 weeks had sensitivity of 4.76%, specificity 97.25%, ppv 22.22%, and npv 86.11%.

At 32 weeks had sensitivity of 14.29%, specificity 90.98%, ppv 20.69%, and npv 86.57%.

At 36 weeks had sensitivity of 14.29%, specificity 88.24%, ppv 16.6%, and npv 86.21%.

b- Diagnostic performance of Second Trimester Scan foetal biometric parameters for the prediction of small for gestational age.

Second Trimester Scan	AUC(95%CI)	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Femur Length(FL)	.714	73.81	60.39	23.48	93.33
Abdominal Circumference(AC)	.723	76.19	69.80	29.36	94.68
Head Circumference(HC)	.754	73.81	70.20	28.97	94.21
Estimated Foetal weight (EFW)	.697	73.81	67.45	27.19	93.99

TABLE 46- DIAGNOSTIC PERFORMANCE OF SECOND TRIMESTER SCAN FOETAL BIOMETRIC PARAMETERS FOR THE PREDICTION OF SMALL FOR GESTATIONAL AGE.

The Femur Length measured had 0.714 AUC with a sensitivity of 73.81%, 60.39% specificity while 23.48% PPV and 93.33% NPV.

The Abdominal Circumference measured had 0.723 AUC with a sensitivity of 76.19%, 69.80% specificity while 29.36% PPV and 94.68% NPV.

The Head Circumference measured had 0.754 AUC with a sensitivity of 73.81%, 70.20% specificity while 28.97% PPV and 94.21%NPV

The Estimated Foetal weight measured had 0.697 AUC with a sensitivity of 73.81%, 67.45% specificity while 27.19% PPV and 93.99% NPV.

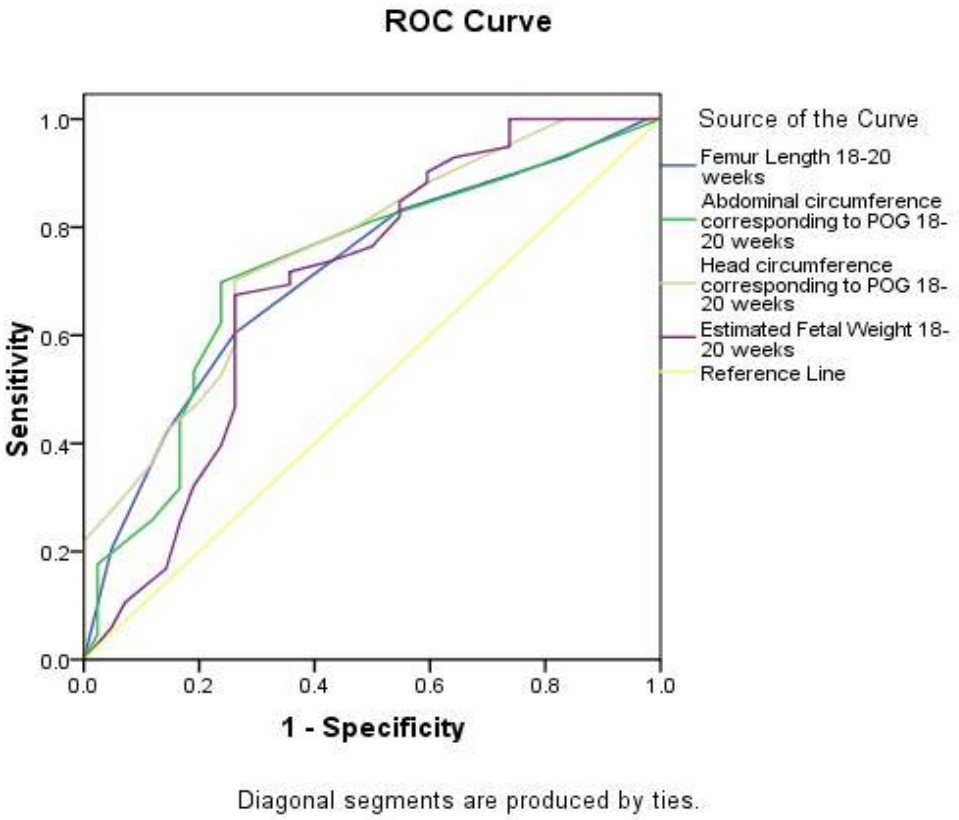


FIGURE 43- RECIEVER OPERATOR CURVE

The AC and HC measured exhibited the highest AUC 0.723 and 0.754 respectively with a sensitivity of 76.19% and 73.81%, and with a specificity of 69.80% and 70.20% respectively.

c- Diagnostic performance of Third Trimester Scan foetal biometric parameters for the prediction of small for gestational age

THIRD TRIMESTER SCAN	AUC (95%CI)	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Femur Length(FL)	.663	47.62	78.82	27.03	90.13
Abdominal Circumference(AC)	.747	64.29	87.06	45	93.67
Head Circumference(HC)	.589	45.24	75.29	23.17	89.3
Estimated Foetal weight (EFW)	.718	57.14	86.67	41.38	92.47

TABLE 47 - DIAGNOSTIC PERFORMANCE OF THIRD TRIMESTER SCANS FOETAL BIOMETRIC PARAMETERS FOR THE PREDICTION OF SMALL FOR GESTATIONAL AGE

The Femur Length measured had 0.663 AUC with a sensitivity of 47.62%, 78.82% specificity while 27.03% PPV and 90.13%NPV.

The Abdominal Circumference measured had 0.747 AUC with a sensitivity of 64.29%, 87.06% specificity while 45% PPV and 93.67% NPV.

The Head Circumference measured had 0.589 AUC with a sensitivity of 45.24%, 75.29% specificity while 23.17% PPV and 89.3% NPV.

The Estimated Foetal weight measured had 0.718 AUC with a sensitivity of 57.14%, 86.67% specificity while 41.38% PPV and 92.47% NPV.

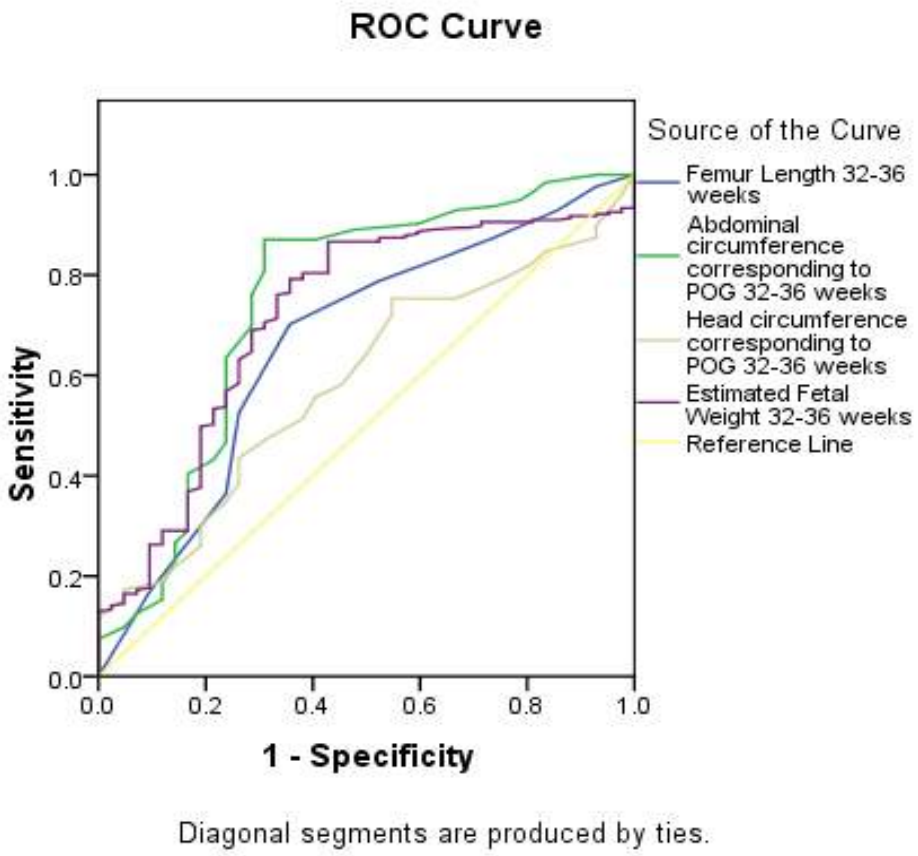


FIGURE 44- RECIEVER OPERATOR CURVE

The AC and EFW measured exhibited the highest AUC 0.747 and 0.718 respectively with a sensitivity of 64.29% and 57.14% ,and with a specificity of 87.06% and 86.67% respectively.

d- Diagnostic performance of Doppler parameters for the prediction of small for gestational age.

		AUC(95%CI)	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Umblical Artery	18-20 weeks	.503	23.81	83.14	18.87	86.89
	32-36 weeks	.403	50	66.27	19.63	88.95
Uterine Artery	18-20 weeks	.607	23.81	89.80	27.78	87.74
	32-36 weeks	.558	45.24	60	15.70	86.93
Middle Cerebral Artery	18-20 weeks	.874	50	85.10	35.59	91.18
	32-36 weeks	.851	76.19	87.45	50	95.71

TABLE 48- DIAGNOSTIC PERFORMANCE OF DOPPLER PARAMETERS FOR THE PREDICTION OF SMALL FOR GESTATIONAL AGE.

The Umblical Artery measured had 0.503 AUC vs .403 with a sensitivity of 23.81% vs 50% , specificity of 83.14% vs 66.27% , PPV of 18.87% vs 19.63 ,NPV of 86.89% vs 88.95% at 18-20 weeks and 32-36 weeks respectively

The Uterine Artery measured had 0.607 AUC vs .558 with a sensitivity of 23.81% vs 45.24%, specificity of 89.80% vs 60% , PPV of 27.78% vs 15.70 ,NPV of 87.74% vs 86.93% at 18-20 weeks and 32-36 weeks respectively

The Middle Cerebral Artery measured had 0.874 AUC vs .851 with a sensitivity of 50% vs 7619%, specificity of 85.10% vs 87.45%, PPV of 35.59% vs 50%, NPV of 91.18% vs 95.71% at 18-20 weeks and 32-36 weeks respectively

E - RECIEVER OPERATOR CURVE FOR DOPPLER PARAMETERS.

1-

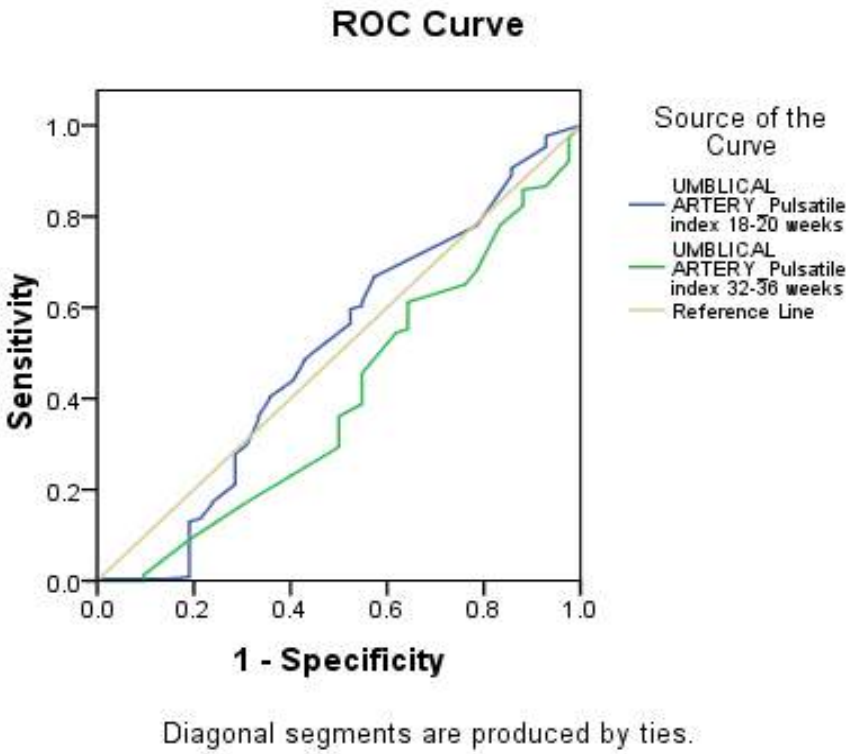


FIGURE 45- ROC CURVE UMBLICAL ARTERY

The AUC 0.503 and 0.403 for Umbilical artery was not significantly associated with Small for Gestational Age.

2 -

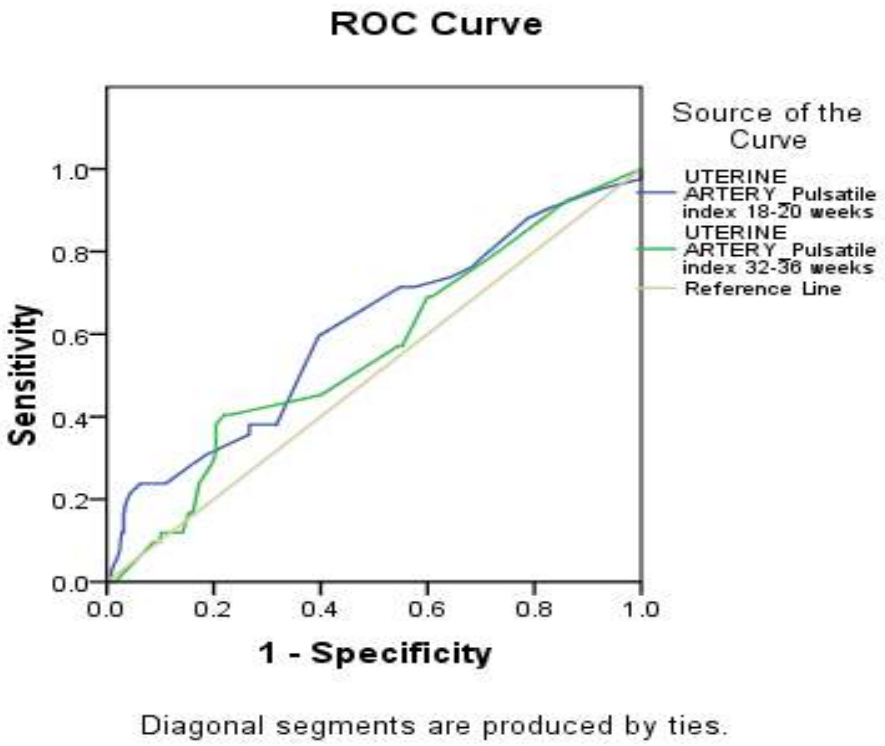


FIGURE 46- ROC CURVE UTERINE ARTERY

The AUC .607 and .558 of uterine artery is significant associated with SGA at 18-20 weeks then 32-36 weeks.

3-

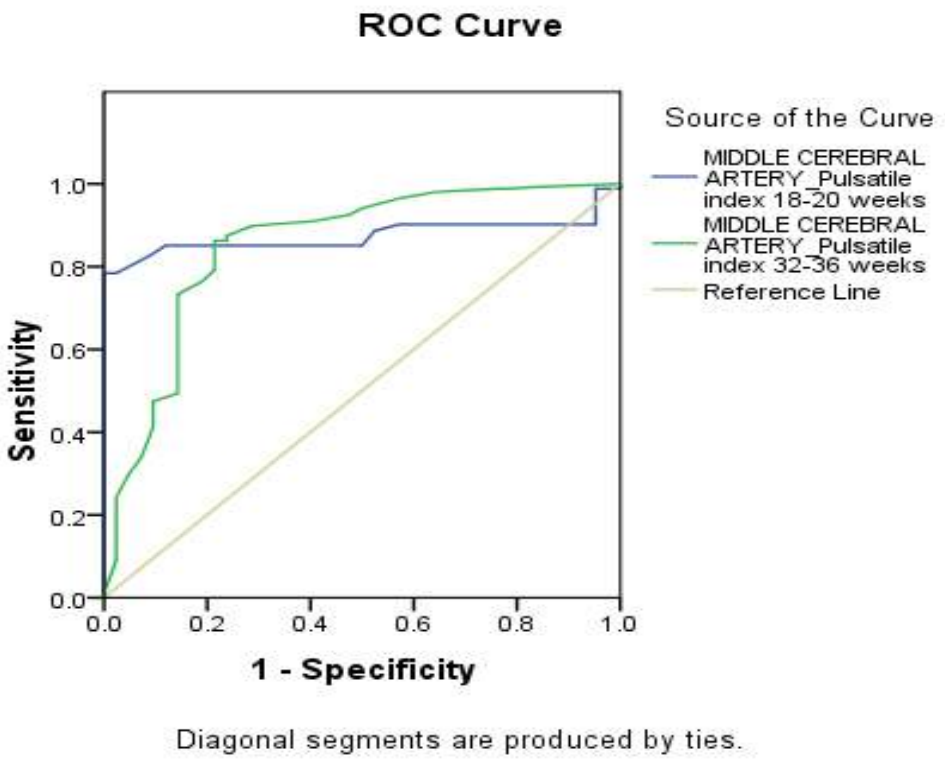


FIGURE 47- ROC CURVE MIDDLE CEREBRAL ARTERY

The AUC .874 and .851 of middle cerebral artery measured is significant associated with SGA at 18-20 weeks and 32-36 weeks.

DISCUSSION

This is a prospective study conducted in the Department of Obstetrics and Gynaecology, DMC&H, Ludhiana .Three hundred ten patients were recruited and thirteen were lost to follow up thus making study population of two ninety seven patients. This study was done to predict small for gestational age infants in low-risk pregnant women.

Patients were divided into two groups, Group A patients had SGA foetus, (SGA was taken as foetal birth weight <10 centile) and Group B had AGA foetus (AGA was taken as foetal birth weight >10th centile). SGA increases the perinatal mortality and morbidity. The early prediction of SGA infants decreases adverse perinatal outcomes.

DEMOGRAPHIC PARAMETERS

In our study out of total 297 patients, 2(4.8%) vs 15(5.9%) were <25 years of age,25(59.5%) vs 164(64.3%) patients belong to age group 26-30 years, 15 (35.7%) vs 76(29.8%) patients belong to age >30 years in group A and group B respectively. Majority of patients were 26- 30 years in group A and B with p value 0.0001 which is statistically significant.

SGA in young reproductive women is explained by the fact that young mothers might not be aware of early antenatal services and appropriate nutrition leading to SGA .Similar results were documented by Alfa Muhihi et al which determined that young maternal age was associated with an increased risk of term-SGA. [110] Our observation is different from that of Anna Palatnik et al who had concluded that advanced maternal age was associated with SGA and have cited adverse pregnancy outcomes due to additional comorbidities (hypertension, diabetes) in advancing age. [111] These comorbidities lead to placental insufficiency and SGA.

In our study out of 297 patients, 102 (34.3%) were primiparous and 195(65.7%) were multiparous .Of the 42 patients who had SGA babies

majority, 52.4 % (n=22) were primiparous. The results were similar to Martha Karen Campbell et al who reported that primiparity was associated with SGA. [112] This is supported by another study done in 2009 by Lesley McCowan et al [113] who observed that nulliparous women have an increased risk of SGA with odds ratios of 1.3–2.1, compared with multiparous women. Multiparous women are likely to have awareness of nutritional needs and took standard antenatal treatment.

In our study out of total 297 patients minimum maternal weight was 50 kg with a BMI of 16.51 kg/m2.Maternal pre pregnancy BMI reflects the foundation for foetal growth and low BMI allow less flexibility to address the demand of foetal growth [114] which is supported by to Martha Karen Campbell [112] et al, they observed that Underweight pre-pregnancy body mass index was associated with moderate SGA (OR 2.4 [95% CI 1.2, 5.0].This is also supported by Leng J et al who observed that, in underweight women had 8 times higher odds of delivering SGA infant . [115]

In our study of 297 patients majority of the patients were graduate, 53.5 % (n=159) with 31.6% (n=94) being undergraduate and 14.8% (n=44) being post graduate. Also, 225 patients (75.8%) were employed with 72 patients (24.2%) being employed. Of the 42 patients who had SGA babies, 32 patients (76.2%) were undergraduate, 21.4% (n=9) patients were graduates and 2.4% (n=1) were postgraduate with p value 0.001which was statistically significant. This result supports the observations by, Zhong-Cheng et al [116] and Anna Cantarutti et al, [117] they observed that ,high level of education of mothers had reduced odds of small for gestational age (OR = 0.82, 95% CI 0.79–0.85). Sebestian et al explained that illiterate and unskilled workers had lack of awareness of good nutrition and their economic condition would not have been conducive to good nutrition as well. [118] Their financial status precluded adequate antenatal care, nutrition and support from family as well.

In our study majority had adequate protein and calorie intake since most of the womens were employed and educated. Womens who had adequate protein and calorie intake were 245(82.5%) and 52(17.5%) patients in group A and B respectively. These patients must be taking recommended daily allowance of protein, calories micronutrients and macronutrients. Balanced diet leads to healthy foetal development. Aamer Imdad et al observed that balanced protein energy supplementation resulted in a significant reduction of 31 % in the risk of giving birth to small for gestational age infants (Relative risk (RR) =0.69, 95% Confidence interval (CI) 0.56 to 0.85). [119] In another study by Jennifer An Emond et al [120] observed that increased diet quality appeared linearly associated with a reduced likelihood of SGA (P-trend = 0.03).

Clinical Parameters

In our study majority of patients had Symphysio Fundal Height corresponding to POG, while SFH variance 1% vs 12.1 % with a sensitivity of 2.38% vs 14.29%, specificity of 99.2% vs 88.24% at 24 weeks and 36 weeks respectively. In group A with SGA infants, SFH variance increases from 2.4% at 24 weeks to 14.3% at 36 weeks which implies SFH was a good predictor in late than early pregnancy. This result supports the observation by Asd Pay et al, that Symphysio fundal height accounted for 3% of individual birth weight variance at 24 weeks, increasing gradually to 20% at40 weeks, with a sensitivity of 50% and the overall specificity of 80%, receiver operating characteristic curves confirmed that SF height was a stronger SGA predictor in late than in early pregnancy. [121] In another study by Goto E et al observed that sensitivity to predict low birthweight (0.72) or small for gestational age (0.58) and specificity to predict low birthweight (0.73) were not sufficiently high. Many studies suggested that Symphysio Fundal Height is unsuitable for primary screening of low birthweight or small for gestational age. [122] Traditionally SFH measurement is considered

cheap, easy to use and requires little training .It varies with BMI. Its accuracy is less in obese and if more than one clinician measures it (interobserver variation).Customised growth charts are considered better because of their ability to differentiate between constitutional and pathologic smallness. [123]

Ultraound Parameters

We evaluated the efiicacy of ultrasound biometry and doppler parameter in the prediction of SGA. In Group A and Group B on second trimester scan with <10th centile parameters in, FL,AC,HC and EFW were 31(73.8%), vs 101(39.6%), 32(76.2%) 77(30.2%), 31(73.8%) vs 76(29.8%), 31(73.8%) vs 83(32.5%) respectively with significant p value of FL(0.001),AC(0.001),HC(0.0001), and EFW(0.0001). In receiver operator curve maximum AUC correspond to AC and HC 0.723 and 0.754. In our study second trimester scan predicted SGA to an accuracy of 73.8 % and 76.1% with measurements of AC and EFW. Edgar Hernandez et al observed that the foetal hemodynamic response to hostile uterine conditions is adaptive in nature and prioritizes and optimal supply of oxygen to brain ,heart and adrenal gland at the expense of muscle bone and fat tissue. [124] Therefore foetal hemodynamic changes might be present prior to the reduced size of biometric parameters such as AC. Min-A Kim et al concluded that AC measured from 24-28 weeks had a sensitivity of 80% for detection of SGA. [125] In the study by Pardeshi Yogeshwari Gangadhar et al, observed that 22-24 weeks of gestational age abdominal circumference (AC) has a better sensitivity(61%), specificity(87.80%), NPV(91.13%) and PPV(52.38%) when compared with femur length (FL), head circumference (HC). [126] It is more accurate at 32-34 weeks than 22-24 weeks.

In Third trimester scan with <10th centile parameters in FL,AC,HC and EFW were 20(47.6%)vs 54 (21.2%), Twenty seven(64.3%) vs 33(12.9%),19(45.2%) vs 63(24.7%), 24(57.1%) vs 34(13.3%) respectively in Group A and B with significant p value of

FL(0.0001),AC(0.0001),HC(0.009), and EFW(0.0001). In receiver operator curve maximum AUC correspond to AC and EFW 0.747 and 0.718 with a sensitivity of 64.29% and 57.14% and a specificity of 87.06% and 86.67% respectively. The AC and EFW were more sensitive and specific for prediction of SGA at 32-36 weeks. [125] This is accordance with Kim et al, they observed that EFW measurements from 33-35+6 weeks achieved a sensitivity of 60.6% and a specificity of 87.6%. [125] This is also supported by De Reu et al, observed that most reliable for the prediction of SGA was an AC but below the 25th percentile. [127]

We evaluated the efficacy of Doppler parameters on second trimester scan and Third trimester scan of Umblical artery, Uterine Artery and Middle cerebral Artery for prediction of SGA.

On second trimester scan in SGA Group,10 (23.8%) patient had Umblical artery pulsatile index >95th centile with p value 0.276 which was not statistically significant .In receiver operator curve AUC is 0.503 with a sensitivity of 23.81% and specificity of 83.14% while PPV of 18.87% and NPV of 86.89%.It shows that Abnormal flow in umblical artery that is increased PI may be associated with birth of SGA neonate. Edgar et al, observed that at 20-24 weeks for prediction of SGA UA PI had a sensitivity of 22.5%, specificity of 86%, PPV of 51.6% and NPV of 62.6%. [124] It implies that UA PI >95th centile was associated with early SGA. De Paco et al observed that at 19–22 weeks of gestation and UA-PI >90th percentile was significantly associated with the delivery of an SGA neonate (birthweight <5th and <10th percentiles) with a LR of 1.7 (95% CI 1.2–2.4). [128] Therefore those with abnormal umbilical blood flow are considered a subgroup at a higher risk of adverse perinatal outcomes [129] including increased mortality and morbidity rates related to foetal hypoxia and acidosis. [130-131] This management is supported by the hypothesis that foetal growth restriction develops after severe villous vasoconstriction. [132]

Uterine artery on Second trimester scan in SGA group,10(23.8%) patient had Uterine artery pulsatile index > 95th centile with significant p value 0.020.In receiver operator curve AUC is 0.607 with a sensitivity of 23.81% and specificity of 89.80% while PPV 27.78% and NPV of 87.74%.%.This result are in accordance with De paco et al, observed that SGA was best predicted by higher uterine artery PI at mid-gestation, [128,133,134]. Edgar et al, they observed that at 20-24 weeks for prediction of SGA UtA PI had a sensitivity of 22.5%, specificity of 93.5%, PPV of 69.6% and NPV of 64.5%[124] .Increased mean UtA-PI at <24 weeks of gestation was associated with late SGA and with SGA at birth.15}.The uterine artery Doppler has the potentials for screening for complications of impaired placentation. Pregnancies affected by FGR and preterm birth has shown to demonstrate increased impedance in the spiral artery

Middle Cerebral Artery on Second trimester scan in SGA group, 21(50%) had middle cerebral artery pulsatile index <5th centile with significant p value 0.0001. In receiver operator curve AUC is 0.874 with a sensitivity of 50% and specificity of 85.10% while PPV of 35.59% and NPV of 91.18%.Middle Cerebral Artery had maximum AUC. It represent that the MCA PI is most corresponding to EFW<10thcentile and MCA evaluation can predict early SGA. This results are in accordance with the study done by Edgar et al, they observed that at 20-24 weeks for prediction of SGA MCA PI had a sensitivity of 15.6%, specificity of 92.2%, PPV of 55.6% and NPV of 63.5%. [124] MCA <5th percentile in foetuses with an EFW <10th percentile is also associated with a significantly higher risk of early SGA (LR+ 10.0 [95% CI 5.1–21.0]). [124] These parameters might benefit from close surveillance to identify the factors causing SGA.

In contrast The Cochrane Database of Systematic Reviews reported that there is still no clear evidence that a foetal Doppler examination of low-risk pregnant women can reduce the prevalence of foetal mortality/morbidity. [135] Similarly, foetal Doppler evaluation has not

been recommended before the suggested time for normal or reduced foetal growth screening at 24 weeks of gestation. [136]

On Third trimester scan, In SGA group, 21(50%) had Umblical artery pulsatile index >95th centile with p value 0.056 which was not statistically significant. In ROC curve, AUC is 0.403 with a sensitivity of 50%, specificity 66.27%,PPV 19.63%,and NPV 88.95%.It represents that an increase of UA PI in third trimester is not significantly associated with birth of a SGA infant as observed by Novac et al [137].They also suggested that UA doppler can diagnose and provide prognostic information for management of FGR and the presence of absent or reverse end diastolic flow correlates with foetal compromise. In accordance with the study by Sharbaf et al, observed that for prediction of adverse perinatal outcome UA had a sensitivity of 53%, specificity 69% ,PPV 88% and NPV 33%. [138]

Uterine artery on Third trimester scan in SGA group,19 (45.2%) had Uterine artery pulsatile index >95th centile with p value 0.522 which was not statistically significant. In ROC curve AUC is 0.558 with a sensitivity of 45.24%, specificity 60%,PPV 15.70%,and NPV 86.9%.Portilla et al suggested that early SGA are due to placental insufficiency but third trimester SGA are due to pathological mechanism.[139] The hypothesis is that Uterine artery represent maternal side changes which are independent of foetal parameters. Obican et al observed that UtA PI >95% are associated with the development of SGA with a sensitivity of 29 % and specificity of 84%. [140]

Middle cerebral artery on Third trimester scan in SGA group 32 (76.2%) had Middle Cerebral Artery PI <5th centile with p value 0.0001 which was statistically significant. In ROC curve AUC is 0.851 with a sensitivity of 76.19%,specificity 87.45%,PPV 50%, and NPV 95.71%.Sharbaf et al observed that a decrease in MCA PI is more significant than changes in UA PI .They also revealed that that diastolic flow appear early in cerebral circulation of foetus than in

Umblical artery and aorta. Changes in cerebral circulation is more sensitive to changes in systemic circulation. [138] In accordance Ibrahim et al revealed a lower PI value of MCA as a highly specific value for predicting SGA. [141] Erkamp et al suggested that third trimester ultrasonography compared to second trimester ultrasonography had additional benefit for detecting foetus risk for preterm birth, SGA, and LGA. It would nearly double detection of foetuses at risk of adverse outcome in a low risk population [142]

Foetal Parameters

In our study out of 297 patients, in group A patients delivered between 37-37+6 weeks ,majority of which delivered by caesarean section 24(57.1%).Kazemier et al observed that delivery of SGA <5th centile foetuses is associated with best perinatal outcome. [143] According to RCOG ,gestational age and foetal surveillance is a critical determinant in decision making of delievery .

In our study, 23(54.8%) vs 159 (62.4%) patients delivered female babies in group A and group B respectively. Nineteen(45.2%) v(s 96(37.6%) patients delivered male babies in group A and group B respectively with p value 0.349 which was statistically not significant. Katz et al suggested in his study that females had higher rates of SGA. [144]

In our study out of 297 patients, incidence of SGA was 42(14.1 %). In a study by Muhihi et al,15.8% were term SGA, and 68.3% were term AGA. Katz et al documented the prevalence of SGA 12 % to 78.4% in India. [144]

In our study the APGAR score was studied at 1 min and 5 min.In SGA Group A apgar score at 1 min and 5 min was not statistically significant with p value 0.248 .Majority of babies had normal apgar score in group A and B and therefore did not require NICU admission. Kalafat et al observed that most of the SGA are constitutionally small, and therefore do not experience significant adverse outcome. [145]

SUMMARY AND CONCLUSION

This is a prospective study conducted in the department of Obstetrics and Gynaecology, DMC&H, Ludhiana. Three hundred ten patients were recruited and thirteen were lost to follow up thus making study population of two ninety seven patients. This study was done to predict small for gestational age infants in low-risk pregnant women.

1- Patients were divided into two groups, Group A patients had SGA foetus, and Group B had AGA foetus.

2- Out of 297 patients the minimum age was 19 year while maximum age was 40. Majority of patients were in 26- 30 years in group A and B with the mean age of 29.24.

3- The minimum maternal weight was 50 kg with a BMI of 16.51 kg/m2 ,maximum was 80 kg with a BMI of 29.38 kg/m2

4- Out of 297 patients,102 (34.3%) were primiparous and 195(65.7%) were multiparous. Majority of patients in Group A were Primigravida and in Group B multigravida.

5- Majority of the patients were unemployed in Group A and employed In Group B

6- Out of 297 patients, 94(31.6%) were undegraduate while 159(53.5%) were graduate and 44(14.8%) were postgraduate. Majority of patients in Group A was Undergraduate and in Group B was Graduate.

7. Majority of patients in Group A had inadequate protein calorie intake (64.3%) and in Group B had adequate protein and calorie intake (90.2%).

8. Out of 297 patients, Majority of the patients had symphysio fundal height corresponding to period of gestation at 24 weeks (99%), 28 weeks (97%), 32 weeks (90.2%) and 36 weeks (87.9%)

9- On Second Trimester Scan Fl, AC, HC, EFW (<10^{th} centile and >10^{th} centile) were 132(44.4%) vs 165(55.6%),109(36.7%) vs 188(63.3%),107(36%) vs 190(64.0%) and 114(38.4%) vs 83(61.6%) respectively. Majority of the patient in SGA group

had ultrasound biometry parameters <10th centile on second trimester scan.

10- Out of 297 patients Umblical Artery Pulsatile index (<95th percentile and >95th percentile) was 244(82.2%) and 53(17.8%) respectively Majority of the patients in both the group had normal umblical artery PI.

11- Out of 297 patients, Uterine Artery Pulsatile index of (<95th percentile and >95th percentile) was 261(87.9%) and 36(12.1%) respectively Majority of the patients in both the groups had normal uterine artery PI.

12- Out of 297 patients, Middle Cerebral Artery PI (<5th percentile and >5th percentile) was 59(19.9%) and 238(80.1%) respectively .Majority of the patients in both the group normal had Middle cerebral artery PI .

13- OnThird trimester scan Fl, AC,HC EFW (<10th centile and >10th centile) were 74(24.9%) vs 223(75.1%), 60(20.2%) vs 237(79.8%),82(27.6%) vs 215(72.4%) and 58(19.5%) vs 239(80.5%).Majority of the patients in SGA group had ultrasound biometry parameters<10th centile on third trimester scan

14- Out of 297 patients on third trimester scan, Umblical Artery PI of <95th percentile and >95th percentile were seen in 190(64%)and 107(36%) respectively. Majority of the patients had normal Umblical Artery PI in both the groups.

15- Out of 297 patients on third trimester scan, Uterine Artery PI (<95th percentile and >95th percentile) was 176(59.3%) and 121(40.7%) respectively. Majority of the patients in both the groups had Uterine artery.

16- Out of 297 patients on third trimester scan, Middle Cerebral Artery PI of (<5th percentile and>5th percentile) was 64(21.5%) and 233(78.5%) respectively. Majority of the patients in Group A had PI <5th centile and Group B > 5th centile.

17-. Majority of the patients delivered between 38-38+6 weeks. Majority of the patients in Group A delivered between 37-37+6 weeks(100%) and Group b delivered between 38-38+6 weeks(61.5%)

18- Majority of the patients delivered vaginally.Majority of the patients in Group A delivered by Caesarean(Lscs)(57.1%) while in Group B delivered vaginally(VD)(56.5%).

19-. Majority of the babies had weight in the range of 2.5-3 kg and were female babies with normal APGAR score at 1 min and 5 min. Majority of babies did not had NICU admission.

20- Symphysio Fundal Height a sensitivity of 2.38% at 24 weeks and 14.2% at 36 weeks.

21- In our study on Second Trimester Scan Abdominal Circumference and Estimated Foetal Weight predicted SGA to an accuracy of 76.1% and 73.81% respectively.

22- On second trimester Scan in SGA group 23.8% had Umblical Artery PI >95th centile, which means increase PI may be associated with birth of a SGA neonate.

23- Uterine artery on second trimester scan had a significant p value 0.0002 which suggest that SGA can be predicted by higher uterine artery PI at mid gestation.

24- MCA <5thcentileon second trimester was seen in 50% patient of SGA group which represent that MCA evaluation can predict early SGA.

25- Third Trimester ultrasonography showed AC and EFW were more sensitive and specific of SGA with a significant p value 0.0001 and 0.0001 respectively.

26- Umblical artery PI >95th centile can diagnose and provide prognostic information for FGR (p value 0.056).

27. Third trimester Uterine artery PI >95thcentile was not correlating with foetal compromise (p value 0.522).

28. Middle Cerebral Artery on Third Trimester Scan is most significant than changes in umblical artery with p value 0.0001 because foetal cerebral circulation are more sensitive to foetal hypoxia than umblical artery.

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PROFORMA

Patient's Name: MRD No: Admission No:

Age: Married Since: Phone No:

Pre- Pregnancy Weight: Height: LMP: EDD:

Obstetric Formula: **G P L A** POG:

Material Substance Abuse: Alcohol- Yes/No Cigarette- Yes/No

Medical History of chronic Hypertension**:** Y/N Medical History of Diabetes Mellitus: Y /N

Previous Pregnancy with Pre-Eclampsia: - Yes/ No

Neonatal Birth of Previous Pregnancy:

- 2.5 - 3 kg

- 2 - 2.5 kg

- 1.5 - 2 kg

- 1 - 1.5 kg

Clinical parameters:

POG					
B.P					
Weight					
B.M.I					
Fundal height					
Any drug intake					

Supervisor signature **Candidate signature**

Ultrasound parameters:

POG	Femur Length	Abdominal circumference corresponding to POG	Head circumference corresponding to POG	Estimated Fetal Weight

	UMBLICAL ARTERY			UTERINE ARTERY			MIDDLE CEREBRAL ARTERY		
POG									
S/D Ratio									
Resistance index									
Pulsatile index									

•**Investigations:**

HB- RBS- TSH-

•**Delivery Details:**

Date of delivery		Weight	
POG at delivery		Sex	
Mode of delivery	NVD/LSCS	Cry	
Outcome			

•Resuscitation Details _____

•Baby shifted to. _____

•Stay_____

•Date of discharge _____

Supervisor signature **Candidate signature**

Sr. No	MRD No	Admission No	Age	Married Since	Occupation	Protein and calories intake	Education	Pre-Pregnancy Weight	Husband Height	Patient Height	PRE BMI	Obstetric Formula Gravida	Parity	Live	Abortion	POG	B.P	Weight	B.M.I	VISIT 2 (POG)	B.P	Weight	B.M.I	SFH VS POG(24 weeks)	SFH VS POG(28 weeks)	Visit 3	B.P	Weight	B.M.I	SFH VS POG(32 weeks)	SFH VS POG(36 weeks)
1	874662	2020000215	26	2	Employed	Adequate	UnderGraduation	60	5"8	157	24.34	3	1	1	1	18+2	110/70	62	25.2	28+2	112/80	68	27.59	Corresponding	Corresponding	32+4	122/76	70	27.3	Corresponding	Corresponding
2	832178	2019009292	29	1	Unemployed	Inadequate	UnderGraduation	64	5"5	164	23.80	1	-	-	-	19+1	120/80	67	24.9	28+5	100/60	72	26.77	Corresponding	Corresponding	31+2	100/60	71	29.6	Corresponding	Corresponding
3	712819	2020000012	33	2	Unemployed	Inadequate	UnderGraduation	55	5"5	168	19.49	1	-	-	-	18+4	100/70	57	20.2	27+5	120/80	63	22.32	Corresponding	Corresponding	32+3	110/70	64	25.8	Not Corresponding	Not Corresponding
4	874517	2019093068	24	1	Employed	Adequate	Postgraduation	69	5"5	164	25.65	2	1	1	-	18+5	110/70	71	26.4	29+2	110/60	77	28.63	Corresponding	Corresponding	32+2	124/76	78.5	32.7	Corresponding	Corresponding
5	874941	2020000206	38	2	Unemployed	Inadequate	UnderGraduation	68	5"5	168	24.09	1	-	-	-	19+1	120/70	70	24.8	28+4	120/60	76	26.93	Corresponding	Corresponding	31+5	110/74	77	31	Corresponding	Corresponding
6	719207	2020000104	28	3	Unemployed	Inadequate	UnderGraduation	69	5"8	157	27.99	3	1	0	1	18+4	120/80	71	28.8	28+2	110/60	77	31.24	Corresponding	Corresponding	32+4	112/72	78	30.5	Corresponding	Corresponding
7	875003	2020000028	32	2	Employed	Adequate	Graduation	61	5"5	168	21.61	2	1	1	-	19+2	110/80	63	22.3	28+3	120/70	69	24.45	Corresponding	Corresponding	33+1	130/80	70	28.2	Corresponding	Corresponding
8	874884	2020000153	26	4	Employed	Adequate	Postgraduation	63	5"8	162	24.01	2	1	1	-	18+3	120/70	65	24.8	27+2	120/80	71	27.05	Corresponding	Corresponding	31+5	110/78	72	27.2	Not Corresponding	Not Corresponding
9	823430	2020000321	26	3	Unemployed	Inadequate	UnderGraduation	55	5"8	157	22.31	2	1	1	-	18+5	110/80	57	23.1	28+2	110/60	63	25.56	Corresponding	Corresponding	32+4	118/76	64	25	Corresponding	Corresponding
10	862721	2020000435	32	5	Employed	Inadequate	Graduation	67	5"8	165	24.61	3	1	1	1	18+4	100/60	69	25.3	27+3	120/70	75	27.55	Corresponding	Corresponding	33+5	114/78	76	27.9	Corresponding	Corresponding
11	865249	2020000967	26	2	Unemployed	Inadequate	UnderGraduation	64	5"5	168	22.68	1	-	-	-	19+2	120/70	66	23.4	27+4	110/80	72	25.51	Corresponding	Corresponding	32+4	128/80	73	29.4	Corresponding	Corresponding
12	877324	2020001257	26	1	Employed	Adequate	Postgraduation	68	5"5	164	25.28	2	1	1	-	18+1	100/80	70	26.0	27+5	120/80	76	28.26	Corresponding	Corresponding	32+2	126/72	77	32.1	Corresponding	Corresponding
13	765591	2020001290	27	2	Unemployed	Inadequate	UnderGraduation	69	5"5	168	24.45	3	1	1	1	19+3	120/80	71	25.2	28+1	100/70	77	27.28	Corresponding	Corresponding	32+3	128/76	78	31.5	Corresponding	Corresponding
14	835674	2020001208	33	4	Employed	Adequate	Postgraduation	59	5"8	162	22.48	2	1	1	-	18+6	110/70	61	23.2	29+1	110/70	67	25.53	Corresponding	Corresponding	33+4	124/72	68	25.7	Corresponding	Corresponding
15	877353	2020001386	29	3	Employed	Inadequate	Graduation	58	5"8	157	23.53	1	-	-	-	18+4	120/80	60	24.3	27+5	120/70	66	26.78	Corresponding	Corresponding	26+2	130/76	67	26.2	Corresponding	Corresponding
16	850385	2020001265	25	1	Employed	Adequate	Postgraduation	57	5"5	164	21.19	3	2	2	-	19+3	100/60	59	21.9	28+4	110/80	65	24.17	Corresponding	Corresponding	32+4	118/76	66	27.5	Corresponding	Corresponding
17	105000	2020001238	37	2	Employed	Adequate	Postgraduation	56	5"5	168	19.84	2	1	1	-	17+6	110/70	58	20.5	28+3	120/80	64	22.68	Corresponding	Corresponding	26+4	112/76	65.5	26.4	Corresponding	Corresponding
18	408150	2020001189	33	1	Employed	Adequate	Postgraduation	61	5"5	164	22.68	1	-	-	-	18+2	120/80	63	23.4	27+4	110/70	69	25.65	Corresponding	Corresponding	31+5	118/74	70	29.2	Corresponding	Corresponding
19	877851	2020001548	30	5	Employed	Adequate	Postgraduation	63	5"8	165	23.14	3	2	2	-	19+1	110/80	67	24.6	28+2	110/80	71	26.08	Not Corresponding	Not Corresponding	26+3	116/72	72	26.4	Not Corresponding	Not Corresponding
20	877424	2020001377	25	2	Employed	Inadequate	Graduation	65	5"5	168	23.03	2	1	1	-	18+5	120/70	69	24.4	27+2	120/80	73	25.86	Corresponding	Corresponding	32+4	118/72	74	29.8	Corresponding	Corresponding
21	877145	2020001325	36	3	Employed	Adequate	Graduation	68	5"8	157	27.59	2	-	-	1	18+3	110/80	70	28.4	28+2	110/70	76	30.83	Corresponding	Corresponding	33+4	116/72	77	30.1	Corresponding	Corresponding
22	878016	2020001677	32	4	Employed	Adequate	Graduation	64	5"8	162	24.39	2	-	-	1	18+6	120/60	66	25.1	28+2	120/70	72	27.43	Corresponding	Corresponding	33+4	118/74	73	27.6	Corresponding	Corresponding
23	877965	2020001673	25	2	Unemployed	Adequate	UnderGraduation	63	5"5	168	22.32	2	1	1	-	19+1	110/70	65	23.0	27+4	120/80	71	25.16	Corresponding	Corresponding	31+2	128/78	72	29	Corresponding	Corresponding
24	877840	2020001550	32	5	Employed	Adequate	Graduation	62	5"8	165	22.77	3	1	1	1	18+4	120/80	65	23.9	27+4	110/70	70	25.71	Corresponding	Corresponding	33+4	128/76	71	26	Corresponding	Corresponding
25	878485	2020001912	33	2	Unemployed	Inadequate	UnderGraduation	61	5"5	168	21.61	2	1	1	-	18+3	110/70	64	22.7	27+2	120/70	69	24.45	Corresponding	Corresponding	31+!	120/78	70	28.9	Corresponding	Corresponding
26	558354	2020001907	29	3	Unemployed	Inadequate	Graduation	68	5"8	157	27.59	2	1	1	-	19+1	120/70	71	28.8	27+3	120/80	76	30.83	Corresponding	Corresponding	32+5	118/78	77	30.1	Corresponding	Corresponding
27	878813	2020002009	35	4	Unemployed	Adequate	Postgraduation	59	5"8	162	22.48	3	1	1	1	18+4	120/80	62	23.6	28+3	110/70	67	25.53	Corresponding	Corresponding	32+3	116/76	68	25.7	Corresponding	Corresponding
28	757300	2020002053	29	2	Employed	Adequate	Postgraduation	58	5"5	168	20.55	1	-	-	-	19+2	110/70	61	21.6	27+3	100/60	66	23.38	Corresponding	Corresponding	33+2	112/78	67	27	Not Corresponding	Not Corresponding
29	228024	2020002088	26	1	Employed	Adequate	Postgraduation	56	5"5	164	20.82	2	-	-	1	18+0	120/70	58	21.6	27+2	110/70	64	23.80	Corresponding	Corresponding	33+4	118/74	65	27.1	Corresponding	Corresponding
30	879258	2020002195	28	3	Employed	Adequate	Graduation	64	5"8	157	25.96	1	-	-	-	19+2	110/80	66	26.8	28+2	120/70	72	29.21	Corresponding	Corresponding	33+2	124/76	73	28.5	Corresponding	Corresponding
31	818009	2020002309	30	2	Unemployed	Adequate	UnderGraduation	63	5"5	168	22.32	1	-	-	-	19+2	120/70	65	23.0	27+2	110/70	71	25.16	Corresponding	Corresponding	29+1	126/74	72	29	Corresponding	Corresponding
32	879437	2020002277	31	1	Employed	Adequate	Postgraduation	64	5"5	164	23.80	2	-	-	1	19+2	100/60	66	24.5	26+2	110/70	72	26.77	Corresponding	Corresponding	33+1	124/76	73	30.4	Corresponding	Corresponding
33	814554	2020002468	33	2	Employed	Adequate	Graduation	64	5"5	168	22.68	1	-	-	-	19+2	110/70	67	23.7	27+3	120/70	72	25.51	Corresponding	Corresponding	29+1	124/72	73	29.4	Corresponding	Corresponding
34	880070	2020002563	34	2	Unemployed	Inadequate	UnderGraduation	59	5"5	168	20.90	1	-	-	-	19+2	120/80	62	22.0	28+2	120/80	67	23.74	Corresponding	Corresponding	27+5	118/76	68	27.4	Corresponding	Corresponding
35	532011	2020002531	27	2	Employed	Adequate	Graduation	56	5"5	168	19.84	2	-	-	1	19+5	120/80	58	20.5	28+2	120/70	64	22.68	Corresponding	Corresponding	33+2	114/78	65	26.2	Corresponding	Corresponding
36	880133	2020002613	20	2	Employed	Adequate	Postgraduation	55	5"5	168	19.49	2	-	-	1	18+6	110/70	58	20.5	27+2	110/60	63	22.32	Corresponding	Corresponding	32+4	119/74	64	25.8	Corresponding	Corresponding
37	880155	2020002647	36	6	Unemployed	Inadequate	UnderGraduation	64	5"8	167	22.95	1	-	-	-	19+2	100/60	67	24.0	27+2	100/70	72	25.82	Corresponding	Corresponding	33+2	122/76	73	26	Corresponding	Corresponding
38	849205	2020002603	33	2	Unemployed	Inadequate	UnderGraduation	63	5"5	168	22.32	1	-	-	-	19+2	120/80	65	23.0	28+2	110/70	71	25.16	Corresponding	Corresponding	33+2	122/76	72	29	Corresponding	Corresponding
39	440309	2020002915	25	3	Employed	Adequate	Graduation	62	5"8	157	25.15	2	1	1	-	19+2	100/70	65	26.4	27+3	100/70	70	28.40	Corresponding	Corresponding	32+2	124/74	71	27.7	Corresponding	Corresponding
40	222659	2020002663	27	2	Employed	Adequate	Graduation	61	5"5	168	21.61	1	-	-	-	18+1	110/80	64	22.7	28+2	100/60	69	24.45	Corresponding	Not Corresponding	32+2	128/80	70	28.8	Not Corresponding	Not Corresponding
41	425242	2020002749	35	3	Employed	Adequate	Graduation	67	5"8	157	27.18	2	1	1	-	19+2	110/80	70	28.4	28+3	110/80	75	30.43	Corresponding	Corresponding	33+4	126/72	76	29.7	Corresponding	Corresponding
42	731893	2020002886	33	1	Employed	Inadequate	Graduation	68	5"5	164	25.28	1	-	-	-	19+2	120/70	71	26.4	27+3	120/80	76	28.26	Corresponding	Corresponding	33+2	128/76	77	32.1	Not Corresponding	Not Corresponding
43	783121	2020002933	31	3	Unemployed	Inadequate	UnderGraduation	62	5"8	157	25.15	1	-	-	-	19+2	110/80	65	26.4	28+2	120/70	70	28.40	Corresponding	Corresponding	33+4	124/72	71	27.7	Corresponding	Corresponding
44	881102	2020003174	28	2	Employed	Adequate	Postgraduation	58	5"5	168	20.55	3	2	2	-	19+3	120/70	61	21.6	27+2	110/70	66	23.38	Corresponding	Corresponding	32+1	130/76	67	27	Corresponding	Corresponding
45	860559	2020003178	36	1	Employed	Adequate	Graduation	69	5"5	164	25.65	1	-	-	-	19+3	110/60	71	26.4	28+2	120/80	77	28.63	Corresponding	Corresponding	33+3	118/76	78	32.5	Corresponding	Corresponding
46	643741	2020002831	32	2	Employed	Adequate	Graduation	64	5"5	168	22.68	1	-	-	-	19+2	120/80	66	23.4	28+2	110/70	72	25.51	Corresponding	Corresponding	33+2	112/76	73	29.4	Corresponding	Corresponding
47	733338	2020003065	29	2	Employed	Adequate	Graduation	66	5"5	168	23.38	3	1	1	1	19+0	120/80	68	24.1	28+2	100/80	74	26.22	Corresponding	Corresponding	32+5	118/74	75	30.2	Corresponding	Corresponding
48	882216	2020003696	33	2	Employed	Adequate	Graduation	64	5"5	168	22.68	1	-	-	-	19+3	120/80	67	23.7	28+2	120/70	72	25.51	Corresponding	Corresponding	29+6	116/72	73	29.4	Corresponding	Corresponding
49	882198	2020003685	37	2	Employed	Adequate	Graduation	66	5"5	168	23.38	2	1	1	-	19+3	120/70	68	24.1	27+2	110/60	74	26.22	Corresponding	Corresponding	33+4	118/72	75	30.2	Corresponding	Corresponding
50	835627	2020003703	34	1	Unemployed	Inadequate	UnderGraduation	61	5"5	164	22.68	3	1	1	1	19+1	100/60	63	23.4	27+3	120/70	69	25.65	Corresponding	Corresponding	29+2	116/72	70	29.2	Corresponding	Corresponding
51	586212	2020003784	27	3	Employed	Adequate	Postgraduation	62	5"8	157	25.15	1	-	-	-	19+3	110/60	65	26.4	28+2	110/70	70	28.40	Corresponding	Corresponding	32+3	118/74	71	27.7	Corresponding	Corresponding
52	882405	2020003749	34	1	Employed	Adequate	Graduation	63	5"5	164	23.42	3	2	2	-	19+3	110/70	66	24.5	27+3	120/70	71	26.40	Corresponding	Corresponding	33+1	128/78	72	30	Corresponding	Corresponding
53	782707	2020003967	27	2	Unemployed	Adequate	UnderGraduation	67	5"5	168	23.74	1	-	-	-	19+3	120/80	69	24.4	28+2	110/70	75	26.57	Corresponding	Corresponding	32+3	128/76	76	30.6	Corresponding	Corresponding
54	882154	2020003644	36	3	Unemployed	Adequate	Graduation	69	5"8	157	27.99	3	1	1	1	19+6	100/70	71	28.8	27+2	100/70	77	31.24	Corresponding	Corresponding	33+4	120/78	78	30.5	Not Corresponding	Not Corresponding
55	869544	2020004181	33	2	Unemployed	Adequate	Postgraduation	64	5"5	168	22.68	1	-	-	-	19+4	120/80	66	23.4	28+2	110/80	72	25.51	Corresponding	Corresponding	33+4	118/78	73	29.4	Corresponding	Corresponding
56	240611	2020004056	34	1	Unemployed	Adequate	Postgraduation	62	5"5	164	23.05	3	2	2	-	18+4	120/70	65	24.2	27+2	110/70	70	26.03	Corresponding	Corresponding	33+1	116/76	71	29.6	Corresponding	Corresponding
57	882373	2020004146	22	2	Unemployed	Adequate	Graduation	58	5"5	168	20.55	2	1	1	-	19+4	110/70	61	21.6	27+2	120/70	66	23.38	Corresponding	Corresponding	32+4	124/76	67	27	Corresponding	Corresponding
58	852080	2020003550	30	3	Unemployed	Adequate	Postgraduation	59	5"8	157	23.94	3	1	1	1	18+5	110/70	61	24.7	27+2	120/80	67	27.18	Corresponding	Corresponding	33+1	126/74	68	26.6	Corresponding	Corresponding
59	883080	2020004059	29	2	Unemployed	Adequate	Postgraduation	62	5"5	168	21.97	1	-	-	-	19+4	120/80	65	23.0	28+3	110/70	70	24.80	Corresponding	Corresponding	32+4	124/76	71	28.6	Corresponding	Corresponding
60	646752	2020004291	30	2	Unemployed	Adequate	Postgraduation	58	5"5	168	20.55	2	-	-	1	18+6	110/60	61	21.6	27+2	100/60	66	23.38	Corresponding	Corresponding	33+4	124/72	67	27	Corresponding	Corresponding
61	773483	2020004596	28	3	Unemployed	Adequate	Graduation	67	5"8	157	27.18	2	1	1	-	19+4	120/70	69	28.0	27+3	120/70	75	30.43	Corresponding	Corresponding	32+4	118/76	76	29.7	Corresponding	Corresponding
62	883793	2020004394	29	2	Unemployed	Inadequate	UnderGraduation	66	5"5	168	23.38	2	-	-	1	18+3	100/70	69	24.4	27+2	110/80	74	26.22	Corresponding	Corresponding	32+4	114/78	75	30.2	Corresponding	Corresponding
63	523260	2020004623	30	2	Unemployed	Adequate	UnderGraduation	64	5"5	168	22.68	2	1	1	-	19+4	100/60	66	23.4	28+2	120/80	72	25.51	Corresponding	Corresponding	33+4	119/74	73	29.4	Corresponding	Not Corresponding
64	884335	2020004717	27	2	Employed	Adequate	UnderGraduation	62	5"5	168	21.97	3	1	1	1	18+6	120/70	65	23.0	27+2	110/80	70	24.80	Corresponding	Corresponding	28+4	118/74	71.5	28.8	Corresponding	Corresponding
65	407736	2020004626	33	1	Employed	Adequate	UnderGraduation	66	5"5	164	24.54	2	1	1	-	19+4	120/70	67	24.9	27+2	120/80	74	27.51	Corresponding	Corresponding	33+4	116/72	75	31.2	Corresponding	Corresponding
66	884213	2020004835	29	3	Employed	Adequate	UnderGraduation	67	5"8	157	27.18	1	-	-	-	19+4	120/70	69	28.0	27+3	110/30	75	30.43	Corresponding	Corresponding	29+5	118/72	76	29.7	Corresponding	Corresponding
67	696813	2020004879	28	1	Employed	Adequate	UnderGraduation	68	5"5	164	25.28	3	1	1	1	18+6	110/70	71	26.4	27+2	120/80	76	28.26	Corresponding	Corresponding	32+1	116/72	77	32.1	Corresponding	Corresponding
68	835340	2020004975	38	3	Unemployed	Inadequate	UnderGraduation	69	5"8	157	27.99	2	1	1	-	19+4	110/80	71	28.8	28+2	110/60	77	31.24	Corresponding	Corresponding	31+5	118/74	78	30.5	Corresponding	Corresponding
69	744740	2020005197	30	1	Employed	Adequate	UnderGraduation	67	5"5	164	24.91	2	-	-	1	19+2	110/70	70	26.0	27+3	120/80	75	27.89	Corresponding	Not Corresponding	33+5	128/78	76	31.7	Not Corresponding	Not Corresponding
70	885956	2020005438	31	3	Unemployed	Inadequate	UnderGraduation	64	5"8	157	25.96	2	1	1	-	19+5	120/80	67	27.2	28+2	120/40	72	29.21	Corresponding	Corresponding	31+3	128/76	73	28.5	Corresponding	Corresponding
71	907063	2020005205	29	1	Employed	Adequate	UnderGraduation	66	5"5	164	24.54	2	-	-	1	18+2	110/70	69	25.7	27+2	220/10	74	27.51	Corresponding	Corresponding	31+4	120/78	75	31.2	Corresponding	Corresponding
72	886307	2020005546	28	3	Employed	Adequate	Graduation	66	5"8	157	26.78	2	-	-	1	19+5	120/60	69	28.0	26+2	120/80	74	30.02	Corresponding	Corresponding	32+5	118/78	75	29.3	Corresponding	Corresponding
73	517182	2020006115	36	2	Employed	Adequate	UnderGraduation	65	5"5	168	23.03	2	1	1	-	19+6	110/80	67	23.7	28+3	120/80	73	25.86	Corresponding	Corresponding	33+6	116/76	74	29.8	Corresponding	Corresponding
74	887208	2020005956	29	1	Employed	Adequate	Graduation	68	5"5	164	25.28	2	1	1	-	19+5	110/70	71	26.4	27+2	110/90	76	28.26	Corresponding	Corresponding	32+5	112/78	77	32.1	Corresponding	Corresponding
75	747236	2020005944	39	3	Employed	Inadequate	Graduation	64	5"8	157	25.96	1	-	-	-	19+5	120/70	67	27.2	27+2	110/30	72	29.21	Corresponding	Corresponding	28+2	118/74	73	28.5	Corresponding	Corresponding
76	192146	2020005099	28	1	Employed	Adequate	UnderGraduation	65	5"5	164	24.17	2	-	-	1	19+0	110/70	67	24.9	27+2	120/80	73	27.14	Corresponding	Corresponding	32+5	124/76	74	30.8	Corresponding	Corresponding
77	614759	2020005476	30	3	Employed	Adequate	UnderGraduation	66	5"8	157	26.78	2	1	1	-	19+5	120/70	68	27.6	27+2	120/80	74	30.02	Corresponding	Corresponding	31+5	110/74	75	29.3	Corresponding	Corresponding

Sr. No	MRD No	Second Trimester Ultrasound(POG)	Femur Length (mm)	Abdominal circumference (mm)	Head circumference (mm)	Estimated Fetal Weight(gm)	UMBLICAL ARTERY Pulsatile Index on Second Trimester Scan	UTERINE ARTERY Pulsatile Index On Second Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index On Second Trimester Ultrasound	Third Trimester Ultrasound (POG)	Femur Length (mm)	Abdominal circumference	Head circumference	Estimated Fetal Weight	UMBLICAL ARTERY Pulsatile Index on Third Trimester Ultrasound	UTERINE ARTERY Pulsatile Index On Third Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index on Third Trimester Ultrasound	HB	RBS	TSH	Weight	POG at delivery	Sex	Mode of delivery	Apgar at 1 min	Apgar at 5 min	NICU admission
1	874662	18+1	28	139	160	275	1.2	0.87	1.78	33+2	67	305	305	2157	0.99	0.84	1.8	9.6	110	1.3	2850	37+5	F	LSCS	6	8	Yes
2	832178	18+2	24	139	158	282	1.48	0.84	1.56	33	62	273	292	1759	0.93	1.05	1.42	9.5	115	1.2	2200	37+6	M	LSCS	8	9	No
3	712819	18+3	28	139	161	270	1.47	0.89	1.37	33+1	59	271	290	1792	0.93	1.07	1.86	9.9	114	1.2	2300	37+2	M	LSCS	6	8	Yes
4	874517	18+4	28	138	161	278	1.1	0.99	1.88	33+2	65	285	302	2169	0.95	1.09	1.87	9.8	117	1.1	3000	38+5	F	LSCS	8	9	No
5	874941	19+1	26	137	161	279	1.51	0.93	1.58	33+1	60	278	290	1807	0.88	1.08	1.48	9.7	118	1.6	2250	37+4	F	NVD	8	9	No
6	719207	19+2	25	137	158	282	1.4	0.93	1.39	33+1	58	269	293	1795	0.99	1.09	1.48	9.6	119	1.7	2310	37+4	F	NVD	6	8	Yes
7	875003	18+4	28	139	161	284	1.09	0.95	1.99	33+1	65	289	299	2045	0.88	0.9	1.89	9.8	117	1.8	2750	38+1	F	NVD	8	9	No
8	874884	18+5	26	139	159	284	1.07	0.88	1.96	33+2	64	286	301	2157	0.99	1	1.85	9.9	114	1.9	2750	38+3	F	LSCS	8	9	No
9	823430	18+6	27	138	160	279	1.52	0.99	1.58	33+1	61	269	294	1797	0.99	1.05	1.49	9.8	112	1.5	2220	37+4	M	NVD	8	9	No
10	862721	19+4	26	137	160	277	1.3	1.88	1.96	33+5	64	298	298	2096	0.96	1.31	1.94	9.9	118	1.4	2750	38+2	M	NVD	8	9	No
11	865249	19+5	26	137	158	275	1.46	0.99	1.54	33+1	60	275	290	1782	0.94	1.04	1.92	10.4	116	1.3	2240	37+2	F	LSCS	8	9	No
12	877324	19+6	27	138	159	284	1.09	0.99	1.87	33+2	67	286	306	2096	0.96	1.01	1.91	10.3	115	1.9	2750	38+3	F	LSCS	6	8	Yes
13	765591	18+3	28	139	160	284	1.47	0.96	1.57	33	58	278	293	1793	0.97	1.06	1.44	10.4	112	2.1	2100	37+4	F	LSCS	6	8	Yes
14	835674	18+4	28	139	160	276	1.05	0.97	1.87	33+4	65	285	297	2182	0.87	1.04	1.95	10.1	122	2	2900	38+6	M	LSCS	6	8	Yes
15	877353	19+5	27	139	161	276	1.03	0.94	1.87	33+2	67	286	314	2184	0.87	1.03	1.98	10.2	122	2.7	3150	39	F	NVD	8	9	No
16	850385	19+6	28	139	161	280	1.23	0.96	1.87	33+1	66	306	299	2011	0.87	0.6	1.95	9.8	111	2.5	2750	37+1	F	NVD	6	8	Yes
17	105000	17+5	27	138	160	275	1.2	0.87	1.88	33+1	67	285	302	2145	0.87	104	1.95	9.9	123	2.9	2850	37+3	F	NVD	6	8	Yes
18	408150	17+6	27	138	159	280	1.24	1.88	1.89	33+1	65	305	301	2068	0.88	0.7	1.90	9.7	128	2.5	2720	37+5	F	NVD	6	8	Yes
19	877851	18+4	28	137	161	278	1.3	0.89	1.99	33+1	66	303	310	2125	0.89	0.5	1.98	10.7	125	2.4	2750	37+4	F	LSCS	6	8	Yes
20	877424	19+1	27	138	161	278	1.03	0.99	1.93	33+1	67	308	317	2024	0.99	1.12	1.99	10.8	124	2.9	2800	37+6	F	NVD	8	9	No
21	877145	18+5	26	137	160	283	1.04	0.93	1.93	33	68	295	311	2131	0.93	0.8	1.93	10.5	129	2.5	2750	38	F	NVD	8	9	No
22	878016	18+4	26	137	161	285	1.33	0.93	1.95	33+4	64	289	315	2004	0.93	1.08	1.95	10.6	133	2.9	2750	38+2	F	NVD	8	9	No
23	877965	18+1	28	139	159	276	1.7	0.95	1.88	33	68	289	313	2024	0.95	0.9	1.99	10.4	138	2.6	2950	38+4	F	NVD	8	9	No
24	877840	18+3	26	139	161	277	1.09	1.88	2.06	33+4	65	287	307	2017	0.88	1.06	1.94	10.4	136	2.5	2750	38+5	F	NVD	8	9	No
25	878485	18+4	28	138	160	285	1.2	0.99	2.07	33	68	285	299	2143	0.99	1.01	1.96	10.3	138	2.4	2900	37+4	F	LSCS	6	8	Yes
26	558354	18+2	27	138	159	285	1.25	1.74	2.09	33	68	302	303	2083	0.88	1.31	1.97	10.6	135	2.8	2950	38+6	F	LSCS	8	9	No
27	878813	18+5	27	138	160	278	1.23	0.99	1.58	33	66	295	296	2147	0.99	1.08	1.94	10.8	139	2.6	2730	37+4	F	NVD	6	8	Yes
28	757300	18+2	28	138	161	277	1.24	0.99	1.88	33+2	67	297	302	2192	0.99	1.01	1.96	10.8	132	2.9	2750	38+1	F	NVD	6	8	Yes
29	228024	18+4	28	139	159	285	1.25	0.96	1.95	33+4	68	297	312	2187	0.96	1.02	1.95	10.4	131	2.5	2750	38+3	F	NVD	6	8	Yes
30	879258	18+5	28	138	160	278	1.26	0.94	2.11	33+2	67	292	314	2016	0.97	1.04	1.95	10.7	135	2.1	2800	37+4	F	LSCS	8	9	No
31	818009	18+3	26	137	159	282	1.31	0.96	2.17	33+4	65	299	312	2091	0.94	1.14	1.98	10.6	134	2	2800	38+2	M	LSCS	8	9	No
32	879437	18+2	28	137	160	280	1.09	0.97	2.18	33	64	310	314	2078	0.96	0.7	1.93	10.2	133	3	2820	37+2	F	NVD	6	8	Yes
33	814554	18+4	26	139	161	282	1.07	0.99	2.43	33+4	64	292	313	2042	0.87	1.06	1.92	10.3	137	3.1	2750	38+3	F	LSCS	8	9	No
34	880070	18+3	28	138	159	275	1.46	0.93	1.52	33	60	276	295	1781	0.88	0.7	1.41	10.4	134	3.1	2300	37+4	M	LSCS	8	9	No
35	532011	18+2	26	139	159	277	1.08	0.93	0.94	33	67	307	309	2042	0.89	0.8	1.48	10.5	138	1.9	2950	38+6	F	LSCS	8	9	No
36	880133	18+3	27	139	161	281	1.2	0.95	1.44	33	64	304	300	2004	0.99	0.8	1.88	10.7	139	1.8	3200	39	F	NVD	8	9	No
37	880155	18+2	30	138	159	274	1.48	1.88	1.33	33+2	62	274	292	1793	0.93	0.9	1.41	10.8	140	1.5	2150	37+4	M	NVD	6	8	Yes
38	849205	18+3	25	137	160	274	1.23	0.99	1.55	33+2	60	272	290	1820	0.93	1.05	2.04	9.9	121	2.2	2200	37+4	M	NVD	8	9	No
39	440309	18+2	26	138	160	284	1.28	0.88	1.13	33	66	300	296	2086	0.95	1.01	1.45	9.8	126	2.3	2720	37+4	F	LSCS	8	9	No
40	222659	18+3	27	137	161	278	1.28	0.99	1.44	33	64	300	305	2184	0.88	1.31	1.42	9.7	124	2.1	2800	37+4	F	LSCS	8	9	No
41	425242	18+2	26	137	161	280	1.36	0.99	2.33	33+4	67	309	320	2119	0.99	0.5	2.08	9.6	127	2.5	2850	37+4	F	NVD	8	9	No
42	731893	18+3	27	137	160	285	1.34	0.96	2.28	33+2	67	290	300	2115	0.88	0.7	2.09	9.8	124	2.2	2950	38+6	M	NVD	8	9	No
43	783121	18+3	27	139	160	270	1.28	0.94	1.52	33+4	61	278	293	1763	0.99	0.5	1.47	9.9	128	2.1	2310	37+4	F	LSCS	8	9	No
44	881102	18+3	26	139	161	280	1.03	0.96	2.36	33	67	290	308	2194	0.99	0.7	2.04	9.8	131	2.4	2750	38+1	F	LSCS	6	8	Yes
45	860559	18+2	28	138	160	284	1.07	0.97	2.32	33+3	65	304	313	2161	0.96	0.8	2.06	9.9	137	2.9	2750	38+3	F	NVD	8	9	No
46	643741	18+3	28	138	161	276	1.2	0.87	2.29	33+2	67	309	308	2156	0.94	0.8	2.09	10.4	136	2.5	2830	37+4	F	NVD	8	9	No
47	733338	18+2	26	137	159	276	1.3	1.87	2.33	33+1	64	299	309	2019	0.96	0.9	2.07	10.3	113	2.9	2750	38+2	F	NVD	8	9	No
48	882216	18+2	27	139	160	277	1.27	0.87	2.42	33+4	66	287	311	2148	0.97	1	2.09	10.4	114	2.6	2955	37+2	F	NVD	8	9	No
49	882198	18+3	27	139	160	282	1.29	0.87	1.43	33+2	64	296	299	2182	0.87	1.01	1.45	10.1	113	2.5	2900	38+3	F	NVD	8	9	No
50	835627	18+2	26	139	160	275	1.33	1.88	1.51	33+4	58	274	290	1784	0.87	1.31	1.41	10.2	133	2.4	2200	37+4	F	LSCS	8	9	No
51	586212	18+2	28	138	161	275	1.25	0.89	2.43	33+1	64	309	311	2189	0.87	1	2.04	9.8	113	2.8	2950	38+6	M	LSCS	8	9	No
52	882405	18+3	28	139	159	279	1.03	0.99	1.82	33+1	65	293	302	2007	0.87	1.01	2.11	9.9	113	2.6	3250	39	F	NVD	8	9	No
53	782707	18+3	27	138	161	275	1.09	0.93	1.23	33+1	67	309	307	2094	0.88	0.5	2.05	9.7	140	2.9	2750	37+4	M	NVD	8	9	No
54	882154	18+2	26	137	160	277	1.07	0.93	1.62	33+4	68	290	313	2055	0.89	0.7	2.13	10.7	133	2.5	2950	38+6	F	NVD	8	9	No
55	869544	18+3	28	139	160	279	1.06	0.95	1.87	33+4	66	291	316	2093	0.99	1.12	2.14	10.8	130	2.1	2800	37+4	F	LSCS	6	8	Yes
56	240611	18+2	28	138	160	277	1.05	0.88	1.62	33+1	64	299	303	2129	0.93	0.7	2.09	10.5	122	2	2800	38+1	M	LSCS	6	8	Yes
57	882373	18+2	28	138	160	275	1.28	0.99	1.83	33+1	64	294	296	2050	0.93	1.14	2.07	10.6	129	3	2850	38+3	M	NVD	8	9	No
58	852080	18+3	28	138	161	277	1.07	0.88	1.88	33+1	67	293	298	2070	0.95	0.8	2.09	10.4	131	3.1	2650	37+4	M	LSCS	6	8	Yes
59	883080	18+2	26	139	161	282	1.02	0.99	1.99	33+1	68	287	298	2199	0.88	0.9	2.05	10.4	133	3.1	2850	38+2	M	LSCS	6	8	Yes
60	646752	18+3	26	137	161	284	1.25	0.99	1.88	33+4	65	301	307	2170	0.99	1	2.04	10.3	130	1.9	2870	37+2	F	LSCS	6	8	Yes
61	773483	18+3	28	137	159	278	1.05	1.96	1.77	33+1	65	287	315	2173	0.88	1.01	2.05	10.6	129	1.8	2850	38+3	F	NVD	8	9	No
62	883793	18+3	30	137	161	284	1.02	1.05	1.38	33	60	278	291	1758	0.77	1.31	1.48	10.8	120	1.5	2250	37+4	M	NVD	6	8	Yes
63	523260	18+3	28	138	159	283	1.25	1.45	1.94	33+4	66	310	300	2140	0.77	1	1.88	10.8	122	2.2	2950	38+6	M	LSCS	6	8	Yes
64	884335	18+2	27	138	159	275	1.32	1.35	1.82	33+4	65	307	307	2067	0.87	1.01	1.89	10.4	126	2.3	3300	39	F	LSCS	8	9	No
65	407736	18+5	30	138	161	283	1.25	1.25	1.85	33	67	295	313	2053	0.88	0.5	1.85	10.7	128	2.1	2750	37+4	F	LSCS	8	9	No
66	884213	18+3	31	139	160	283	1.36	1.35	1.83	33+4	66	310	299	2003	0.89	1.13	1.9	10.6	129	2.5	2900	38+2	F	NVD	6	8	Yes
67	696813	18+2	31	138	159	281	1.27	1.45	1.82	33	66	310	314	2005	0.99	0.5	1.94	10.2	120	1.2	2950	37+2	F	LSCS	6	8	Yes
68	835340	18+4	29	137	161	283	1.07	1.05	1.54	33	59	272	290	1761	0.78	0.7	1.92	10.3	110	1.2	2200	37+2	M	LSCS	6	8	Yes
69	744740	18+3	30	138	159	284	1.09	1.05	1.78	33+5	68	285	305	2054	0.76	1.15	1.91	10.4	124	1.1	2950	38+5	M	LSCS	6	8	Yes
70	885956	18+2	29	139	159	275	1.3	1.35	1.38	33	58	277	292	1820	0.73	0.8	1.44	10.5	127	1.6	2120	37+4	F	NVD	6	8	Yes
71	907063	18+3	29	138	161	282	1.32	1.35	1.57	33	67	290	299	2031	0.75	0.9	1.95	10.7	124	1.7	2850	37+4	F	NVD	6	8	Yes
72	886307	18+2	30	137	161	278	1.09	1.05	1.78	33	66	285	310	2129	0.75	1	1.98	9.9	128	1.8	2850	38+2	F	NVD	8	9	No
73	517182	18+3	31	138	161	280	1.28	0.87	1.88	33+6	68	288	303	2080	0.74	1.01	1.95	10.4	131	1.9	2850	38+3	F	LSCS	6	8	Yes
74	887208	18+2	29	139	161	281	1.35	0.88	1.99	33	68	296	314	2094	0.77	1.31	1.95	10.3	137	1.5	2780	37+4	M	NVD	8	9	No
75	747236	18+3	30	137	159	276	1.33	0.89	1.88	33+4	64	295	302	2073	0.73	1	1.90	10.4	136	1.4	2850	38+2	M	NVD	8	9	No
76	192146	18+2	30	138	160	282	1.08	0.99	1.99	33+1	68	310	320	2026	0.79	1.01	1.98	10.1	113	1.3	2850	37+2	F	LSCS	6	8	Yes
77	614759	18+3	29	139	160	282	1.09	0.93	1.99	33+4	64	293	298	2151	0.93	1.02	1.99	10.2	114	1.9	2850	38+3	F	LSCS	6	8	Yes

Sr. No	MRD No	Admission No	Age	Married Since	Occupation	Protein and calories intake	Education	Pre-Pregnancy Weight	Husband Height	Patient Height	PRE BMI	Obstetric Formula Gravida	Parity	Live	Abortion	POG	B.P	Weight	B.M.I	VISIT 2 (POG)	B.P	Weight	B.M.I	SFH VS POG(24 weeks)	SFH VS POG(28 weeks)	Visit 3	B.P	Weight	B.M.I	SFH VS POG(32 weeks)	SFH VS POG(36 weeks)
78	866976	2020006073	28	1	Employed	Adequate	Graduation	65	5"5	164	24.17	2	1	1	-	19+6	110/80	67	24.9	28+2	110/60	73	27.14	Corresponding	Corresponding	32+5	112/72	74	30.8	Not Corresponding	Not Corresponding
79	205864	2020005930	31	3	Employed	Adequate	Graduation	69	5"8	157	27.99	1	-	-	-	19+5	120/80	72	29.2	28+2	120/80	77	31.24	Corresponding	Corresponding	33+5	130/80	78	30.5	Corresponding	Corresponding
80	766572	2020005840	30	1	Unemployed	Adequate	UnderGraduation	70	5"5	164	26.03	2	1	1	-	18+5	110/70	73	27.1	27+2	110/80	78	29.00	Corresponding	Corresponding	33+4	110/78	79	32.9	Corresponding	Corresponding
81	885948	2020005437	32	3	Employed	Adequate	Graduation	67	5"8	157	27.18	1	-	-	-	19+5	100/60	71	28.8	26+2	120/80	75	30.43	Corresponding	Corresponding	33+5	118/76	76	29.7	Corresponding	Corresponding
82	888006	2020005299	29	1	Employed	Adequate	Graduation	71	5"5	164	26.40	2	-	-	1	19+6	110/70	74	27.5	27+2	120/80	79	29.37	Corresponding	Corresponding	32+5	114/78	80	33.3	Corresponding	Corresponding
83	888167	2020006414	26	3	Employed	Adequate	Graduation	60	5"8	167	21.51	2	1	1	-	18+4	120/80	63	22.6	28+2	120/90	68	24.38	Corresponding	Corresponding	32+1	128/80	69	24.6	Corresponding	Corresponding
84	888157	2020006406	29	5	Employed	Adequate	UnderGraduation	60	5"10	174	19.82	2	1	1	-	18+5	120/70	63	20.8	27+3	120/80	68	22.46	Corresponding	Corresponding	32+1	128/76	69	23.1	Corresponding	Corresponding
85	978450	2020062894	30	1.5	Unemployed	Inadequate	UnderGraduation	58	5"8	162	22.10	2	1	1	-	18+4	110/70	61	23.2	27+3	110/90	66	25.15	Corresponding	Corresponding	31+4	124/72	67	25.4	Not Corresponding	Not Corresponding
86	868415	2021084432	32	3	Employed	Adequate	UnderGraduation	64	5"8	157	25.96	2	1	1	-	19+1	100/80	67	27.2	28+3	120/80	72	29.21	Corresponding	Corresponding	31+4	120/80	73	28.5	Corresponding	Corresponding
87	989143	2021654489	28	2	Unemployed	Inadequate	UnderGraduation	58	5"8	167	20.80	1	-	-	-	18	120/80	61	21.9	28+3	110/80	66	23.67	Corresponding	Corresponding	31+4	11-/60	67	23.8	Corresponding	Corresponding
88	969414	2020053284	27	11 m	Employed	Inadequate	Graduation	54	5"8	162	20.58	2	1	1	-	18+4	110/70	57	21.7	27+3	110/90	62	23.62	Corresponding	Corresponding	31=4	110/70	63	23.8	Corresponding	Corresponding
89	966414	2020461328	27	1.5	Employed	Adequate	Graduation	58	5"8	162	22.10	1	-	-	-	18+4	120/70	62	23.6	27+3	120/80	66	25.15	Corresponding	Corresponding	31+4	120/60	67	25.4	Corresponding	Corresponding
90	432168	2020432980	32	2	Employed	Adequate	Graduation	55	5"5	168	19.49	1	-	-	-	19+2	120/80	59	20.9	28+3	120/80	63	22.32	Corresponding	Corresponding	33+2	130/80	64	25.8	Corresponding	Corresponding
91	234816	2021438760	22	1	Employed	Adequate	Graduation	50	5"8	165	18.37	2	1	1	-	19	100/70	53	19.5	27+3	110/70	58	21.30	Corresponding	Corresponding	21+6	126/80	59	21.6	Corresponding	Corresponding
92	432190	2020132189	35	10	Employed	Adequate	Graduation	65	5"8	162	24.77	2	1	1	-	18+2	100/60	69	26.3	26+2	120/80	73	27.82	Corresponding	Corresponding	28+2	130/80	74	28	Not Corresponding	Not Corresponding
93	413161	2020418621	35	5	Employed	Adequate	Graduation	55	5"5	168	19.49	2	-	-	1	18+2	120/70	58	20.5	27+2	120/80	63	22.32	Corresponding	Corresponding	33+8	120/80	64	25.8	Corresponding	Corresponding
94	302141	2020816219	21	1	Employed	Adequate	Graduation	50	5"5	168	17.72	1	-	-	-	18+1	120/80	53	18.8	28+3	110/90	58	20.55	Corresponding	Corresponding	23+5	120/90	59	23.8	Corresponding	Corresponding
95	321694	2021473216	35	6	Employed	Adequate	Graduation	55	5"5	160	21.48	2	1	1	-	18	100/70	58	22.7	27+2	120/80	63	24.61	Corresponding	Corresponding	33+3	120/70	64	27.6	Corresponding	Corresponding
96	236192	2020416932	22	1	Employed	Adequate	Graduation	50	5"8	174	16.51	1	-	-	-	18	110/60	53	17.5	26+2	110/80	58	19.16	Corresponding	Corresponding	32+6	110/80	59	19.8	Corresponding	Corresponding
97	236142	2020416391	25	5	Employed	Adequate	Graduation	57	5"8	162	21.72	1	-	-	-	18+2	120/80	61	23.2	28+3	120/80	65	24.77	Corresponding	Corresponding	32+6	110/80	66	25	Corresponding	Corresponding
98	324193	2020416392	30	6	Unemployed	Inadequate	UnderGraduation	56	5"8	174	18.50	2	1	1	-	18+2	120/70	69	22.8	27+3	120/80	64	21.14	Corresponding	Corresponding	33+6	120/72	65	24.6	Corresponding	Corresponding
99	279316	2020413216	35	5	Employed	Adequate	Graduation	55	5"5	168	19.49	2	1	1	-	18+2	120/80	59	20.9	28+1	120/80	63	22.32	Corresponding	Corresponding	33+3	114/80	65	21.8	Corresponding	Corresponding
100	324169	2020419321	32	4	Employed	Adequate	Graduation	55	5"8	174	18.17	1	-	-	-	18+2	110/80	58	19.2	27+3	120/80	63	20.81	Corresponding	Corresponding	33+9	124/70	63	25.4	Corresponding	Corresponding
101	237491	2020736182	35	5	Employed	Adequate	Graduation	55	5"8	165	20.20	2	1	1	-	18	110/70	58	21.3	27+2	110/70	63	23.14	Corresponding	Corresponding	32+4	126/70	65	21.8	Corresponding	Corresponding
102	207396	2020473291	30	5	Unemployed	Inadequate	UnderGraduation	55	5"8	165	20.20	1	-	-	-	18	100/60	58	21.3	27+3	120/80	63	23.14	Corresponding	Corresponding	33+3	114/74	65	23.8	Corresponding	Corresponding
103	203692	2020432187	27	5	Unemployed	Adequate	UnderGraduation	55	5"8	165	20.20	2	1	1	-	18+2	120/80	58	21.3	28+2	120/80	63	23.14	Corresponding	Corresponding	32+2	124/78	65	23.8	Corresponding	Corresponding
104	324196	2020418261	30	5	Unemployed	Inadequate	UnderGraduation	60	5"5	168	21.26	1	-	-	-	18+2	120/70	63	22.3	28+2	120/80	68	24.09	Corresponding	Corresponding	33+2	110/80	65	23.8	Corresponding	Corresponding
105	239182	2020416387	25	5	Employed	Adequate	Graduation	58	5"8	162	22.10	1	-	-	-	18	110/80	61	23.2	28+1	110/70	66	25.15	Corresponding	Not Corresponding	31+4	116/90	69	26.1	Not Corresponding	Not Corresponding
106	236182	2020418262	35	5	Employed	Adequate	Graduation	50	5"5	168	17.72	1	-	-	-	18+2	100/70	53	18.8	27+2	120/80	58	20.55	Corresponding	Corresponding	31+3	130/80	59	23.8	Corresponding	Corresponding
107	236148	2020418421	32	4	Employed	Adequate	Graduation	55	5"8	162	20.96	1	-	-	-	18	110/80	58	22.1	28+1	110/80	63	24.01	Corresponding	Corresponding	33+2	130/80	65	24.6	Corresponding	Corresponding
108	236143	2020416321	27	3	Employed	Adequate	Graduation	50	5"5	160	19.53	1	-	-	-	18+4	120/80	53	20.7	27+2	120/70	58	22.66	Corresponding	Corresponding	32+6	120/70	59	25.4	Corresponding	Corresponding
109	329182	2020418293	30	2	Employed	Inadequate	Graduation	58	5"5	168	20.55	1	-	-	-	18	120/70	61	21.6	28+2	110/80	66	23.38	Corresponding	Corresponding	31+4	140/80	68	27.4	Corresponding	Corresponding
110	872941	2020416932	25	2	Employed	Adequate	Graduation	55	5"5	168	19.49	1	-	-	-	18+4	110/80	58	20.5	28+3	120/70	63	22.32	Corresponding	Corresponding	32+6	118/80	64	25.8	Corresponding	Corresponding
111	134628	2021030151	25	2	Employed	Adequate	Graduation	52.5	5"8	162	20.00	1	-	-	-	18+6	120/70	55	21.0	27+2	120/80	60	22.86	Corresponding	Corresponding	32+0	128/80	62	23.5	Corresponding	Corresponding
112	468214	2020418293	40	10	Employed	Adequate	Graduation	80	5"8	165	29.38	2	1	-	1	18	110/70	83	30.5	27+2	110/70	88	32.32	Corresponding	Corresponding	34+1	120/80	85	31.2	Corresponding	Corresponding
113	236148	2020419761	25	4	Employed	Adequate	Graduation	50	5"8	167	17.93	1	-	-	-	18	120/70	53	19.0	27+2	120/80	58	20.80	Corresponding	Corresponding	32+2	130/70	58	20.6	Corresponding	Corresponding
114	236192	2020416928	40	10	Employed	Adequate	Graduation	70	5"8	174	23.12	1	-	-	-	18+2	120/80	74	24.4	28+1	120/70	78	25.76	Corresponding	Corresponding	31+3	120/72	79	26.5	Corresponding	Corresponding
115	237481	2021436189	32	6	Employed	Adequate	Graduation	68	5"8	174	22.46	2	1	-	1	18	100/70	70	23.1	27+2	110/80	76	25.10	Corresponding	Corresponding	33+2	110/70	79	26.5	Not Corresponding	Not Corresponding
116	346192	2020416094	25	2	Unemployed	Inadequate	UnderGraduation	60	5"10	176	19.37	2	1	1	-	18+2	120/80	63	20.3	28+2	120/80	68	21.95	Corresponding	Corresponding	33+1	110/70	68	24.2	Corresponding	Corresponding
117	236148	2020416319	40	10	Unemployed	Inadequate	UnderGraduation	70	-	167	25.10	1	-	-	-	18+2	100/60	74	26.5	28+4	120/80	78	27.97	Corresponding	Corresponding	34+2	110/70	79	25	Corresponding	Corresponding
118	326414	2020416314	40	2	Employed	Inadequate	Graduation	60	5"8	157	24.34	1	-	-	-	18	120/70	63	25.6	27+2	110/70	68	27.59	Corresponding	Corresponding	34+6	110/70	69	21.8	Not Corresponding	Not Corresponding
119	236142	2020463162	35	5	Employed	Adequate	Graduation	65	5"5	168	23.03	1	-	-	-	18+4	110/60	68	24.1	28+3	120/80	73	25.86	Corresponding	Corresponding	33+3	140/80	73	29.4	Corresponding	Corresponding
120	324162	2020415421	21	2	Employed	Adequate	Graduation	60	5"8	167	21.51	1	-	-	-	18	120/80	63	22.6	27+2	110/70	68	24.38	Corresponding	Corresponding	32+5	110/90	70	24.9	Corresponding	Corresponding
121	324196	2020436192	20	1	Employed	Adequate	Graduation	55	5"8	174	18.17	1	-	-	-	18	100/70	57	18.8	28+3	120/80	63	20.81	Corresponding	Corresponding	32+2	124/80	62	20.8	Corresponding	Corresponding
122	234612	2020143261	40	2	Employed	Adequate	Graduation	60	5"8	165	22.04	1	-	-	-	18	100/70	63	23.1	27+3	110/70	68	24.98	Corresponding	Corresponding	33+4	130/90	69	25.3	Corresponding	Corresponding
123	203461	2020169321	25	2	Employed	Adequate	Graduation	50	5"8	167	17.93	2	1	1	-	18+4	120/80	52	18.6	28+3	120/80	58	20.80	Corresponding	Corresponding	32+6	120/80	59	21	Corresponding	Corresponding
124	291692	2020418293	35	5	Employed	Adequate	Graduation	60	5"5	168	21.26	1	-	-	-	18	110/70	62	22.0	27+2	110/70	68	24.09	Corresponding	Corresponding	33+2	110/60	69	27.8	Corresponding	Corresponding
125	324192	2020419321	32	2	Employed	Adequate	Graduation	50	5"8	162	19.05	1	-	-	-	18+2	120/80	52	19.8	28+3	120/80	58	22.10	Corresponding	Corresponding	31+2	120/76	59	22.3	Corresponding	Corresponding
126	236182	2020416321	21	2	Unemployed	Inadequate	UnderGraduation	58	5"5	160	22.66	1	-	-	-	18	110/70	61	23.8	28+4	110/80	66	25.78	Not Corresponding	Not Corresponding	32+2	118/78	69	29.7	Not Corresponding	Not Corresponding
127	329143	2020416321	30	2	Employed	Adequate	Graduation	60	5"8	170	20.76	1	-	-	-	18	120/80	62	21.5	28+2	120/70	68	23.53	Corresponding	Corresponding	33+6	116/78	69	23.8	Corresponding	Corresponding
128	236481	2020416321	35	5	Employed	Adequate	Graduation	58	5"8	174	19.16	1	-	-	-	18+2	110/80	60	19.8	28+3	120/80	66	21.80	Corresponding	Corresponding	33+6	120/80	69	23.1	Corresponding	Corresponding
129	324169	2020416289	35	2	Unemployed	Inadequate	UnderGraduation	70	5"8	170	24.22	1	-	-	-	18+2	120/70	72	24.9	28+2	110/20	78	26.99	Corresponding	Corresponding	33+2	120/70	79	27.3	Corresponding	Corresponding
130	419321	2020416321	35	8	Employed	Adequate	Graduation	55	5"8	165	20.20	2	1	1	-	18+2	120/80	58	21.3	28+1	120/80	63	23.14	Corresponding	Corresponding	33+4	120/60	62	22.7	Corresponding	Corresponding
131	920161	2020419632	23	4	Employed	Inadequate	Graduation	55	5"8	165	20.20	1	-	-	-	18+2	110/70	58	21.3	28+1	120/80	63	23.14	Corresponding	Corresponding	32+9	120/80	65	23.8	Corresponding	Not Corresponding
132	920190	2020461328	29	6	Employed	Adequate	Postgraduation	54	5"9	167	19.36	2	1	1	-	18	110/60	57	20.4	27+2	110/90	62	22.23	Corresponding	Corresponding	32+2	110/70	79	25	Corresponding	Corresponding
133	920215	2020326141	34	10	Employed	Adequate	Postgraduation	50	5"5	164	18.59	3	2	2	-	18+2	110/80	53	19.7	28+3	120/80	58	21.56	Corresponding	Corresponding	33+2	130/80	60	25	Corresponding	Corresponding
134	918121	2020416321	28	2	Employed	Adequate	Postgraduation	55	5"5	160	21.48	2	1	1	-	18	100/60	58	22.7	27+3	110/70	63	24.61	Corresponding	Corresponding	32+6	130/80	65	28	Corresponding	Corresponding
135	917457	2020416321	29	2	Employed	Adequate	Postgraduation	52	5"8	167	18.65	1	-	-	-	18	120/70	55	19.7	28+2	120/80	60	21.51	Corresponding	Corresponding	32+6	110/70	61	21.7	Corresponding	Corresponding
136	909524	2020463214	26	4	Employed	Adequate	Graduation	50	5"5	168	17.72	2	1	1	-	18	120/80	52	18.4	27+3	120/80	58	20.55	Corresponding	Corresponding	32+3	140/60	59	23.8	Corresponding	Corresponding
137	924063	2021617321	30	6	Employed	Adequate	Postgraduation	57	5"8	162	21.72	2	1	1	-	18+2	110/70	60	22.9	28+2	120/80	65	24.77	Corresponding	Corresponding	33+2	130/80	79	29.9	Corresponding	Corresponding
138	807750	2020432196	22	2	Employed	Adequate	Graduation	52	5"5	168	18.42	1	-	-	-	18	120/80	54	19.1	27+2	110/70	60	21.26	Corresponding	Corresponding	32+2	140/90	60	24.2	Corresponding	Corresponding
139	921044	2021416932	28	4	Employed	Adequate	Graduation	60	5"8	165	22.04	1	-	-	-	18+2	120/70	63	23.1	28+1	120/80	68	24.98	Corresponding	Corresponding	25+5	120/70	69	25.3	Corresponding	Corresponding
140	923217	2020419261	30	6	Employed	Adequate	Graduation	55	5"5	168	19.49	2	1	1	-	18+1	110/60	59	20.9	28+3	120/80	63	22.32	Corresponding	Corresponding	25+5	110/70	63	25.4	Corresponding	Corresponding
141	923095	2020462178	32	2	Employed	Inadequate	Graduation	70	5"8	167	25.10	1	-	-	-	18+4	110/80	72	25.8	28+3	120/80	78	27.97	Corresponding	Corresponding	33+2	140/80	79	28.1	Corresponding	Corresponding
142	824159	2020413261	19	1	Employed	Adequate	Graduation	50	5"5	168	17.72	2	1	1	-	18+2	120/70	52	18.4	28+3	120/80	58	20.55	Corresponding	Corresponding	32+2	130/80	60	24.2	Corresponding	Corresponding
143	117906	2020463214	28	2	Employed	Adequate	Graduation	67	5"8	162	25.53	2	1	1	-	18+2	110/60	69	26.3	28+4	110/20	75	28.58	Corresponding	Corresponding	32+2	110/70	76	24	Not Corresponding	Not Corresponding
144	923022	2020316981	23	2	Unemployed	Adequate	UnderGraduation	57	5"8	157	23.12	1	-	-	-	18+4	120/70	60	24.3	27+3	120/80	65	26.37	Corresponding	Corresponding	32+6	130/80	65	25.4	Corresponding	Corresponding
145	701848	2020321691	30	6	Employed	Adequate	Graduation	60	5"8	165	22.04	2	1	1	-	19	120/80	63	23.1	27+3	110/70	68	24.98	Corresponding	Corresponding	33+3	120/80	72	26.4	Corresponding	Corresponding
146	192760	2020322698	24	2	Unemployed	Inadequate	UnderGraduation	58	5"5	168	20.55	1	-	-	-	19	110/70	61	21.6	28+2	110/70	66	23.38	Corresponding	Corresponding	32+2	120/90	69	27.8	Corresponding	Corresponding
147	908550	2020466366	32	10	Employed	Adequate	Graduation	63	5"8	162	24.01	3	1	1	1	19	120/80	66	25.1	27+2	120/60	71	27.05	Corresponding	Not Corresponding	33+1	120/90	72	27.2	Not Corresponding	Not Corresponding
148	918633	2020416923	25	5	Employed	Adequate	Graduation	62	5"8	167	22.23	2	1	1	-	19	110/70	65	23.3	28+2	110/70	70	25.10	Corresponding	Corresponding	33+1	110/70	74	26.3	Corresponding	Corresponding
149	917436	2020495623	25	6	Unemployed	Adequate	UnderGraduation	59	5"8	157	23.94	2	1	1	-	19	120/70	62	25.2	28+2	110/70	67	27.18	Corresponding	Corresponding	32+1	110/80	70	27.3	Corresponding	Corresponding
150	919841	2020324169	29	6	Employed	Adequate	Graduation	50	5"8	162	19.05	3	1	1	1	18+6	110/70	53	20.2	28+2	100/60	58	22.10	Corresponding	Corresponding	33+2	120/80	71	26.9	Corresponding	Corresponding
151	935307	2020565298	29	6	Unemployed	Adequate	UnderGraduation	62	5"8	167	22.23	2	1	1	-	19	110/80	65	23.3	27+2	120/80	70	25.10	Corresponding	Corresponding	31+2	120/90	73	26.8	Corresponding	Corresponding
152	935142	2020891322	30	8	Employed	Adequate	Graduation	63	5"8	165	23.14	2	1	1	-	19	110/70	66	24.2	28+2	120/80	71	26.08	Corresponding	Corresponding	26+4	120/80	73	26.8	Corresponding	Corresponding
153	213023	2021898622	28	5	Employed	Adequate	Graduation	56	5"8	157	22.72	2	1	1	-	19	110/70	59	23.9	27+2	110/70	64	25.96	Corresponding	Corresponding	33+2	120/70	67	26.2	Corresponding	Corresponding
154	987102	2020058021	27	5	Employed	Adequate	Postgraduation	63	5"8	165	23.14	2	1	1	-	19	120/80	66	24.2	27+2	120/80	71	26.08	Corresponding	Corresponding	33+2	120/80	74	27.1	Corresponding	Corresponding

Sr. No	MRD No	Second Trimester Ultrasound(POG)	Femur Length (mm)	Abdominal circumference (mm)	Head circumference (mm)	Estimated Fetal Weight(gm)	UMBLICAL ARTERY Pulsatile Index on Second Trimester Scan	UTERINE ARTERY Pulsatile Index On Second Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index On Second Trimester Ultrasound	Third Trimester Ultrasound (POG)	Femur Length (mm)	Abdominal circumference	Head circumference	Estimated Fetal Weight	UMBLICAL ARTERY Pulsatile Index on Third Trimester Ultrasound	UTERINE ARTERY Pulsatile Index On Third Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index on Third Trimester Ultrasound	HB	RBS	TSH	Weight	POG at delivery	Sex	Mode of delivery	Apgar at 1 min	Apgar at 5 min	NICU admission
78	866976	18+3	29	139	161	277	1.35	0.93	1.96	33+2	68	293	311	2046	0.95	1.04	1.93	9.8	113	2.1	2600	37+4	F	LSCS	8	9	No
79	205864	18+3	30	137	161	275	1.34	0.95	1.94	33+2	67	297	317	2173	0.88	0.7	1.95	9.9	133	2	2800	38+2	M	LSCS	8	9	No
80	766572	18+2	30	138	160	276	1.09	1.88	1.96	33+4	65	302	317	2095	0.99	0.5	1.99	9.7	113	2.7	2650	37+2	F	NVD	8	9	No
81	885948	18+3	30	137	161	282	1.39	0.99	1.97	33+5	65	287	296	2018	0.88	1.18	1.94	10.7	113	2.5	2900	38+3	F	NVD	8	9	No
82	888006	18+2	30	137	160	285	1.27	0.88	1.87	33+2	67	286	309	2192	0.77	0.8	1.96	10.8	140	2.9	2900	38+2	F	NVD	8	9	No
83	888167	18+2	29	138	161	283	1.28	0.99	1.87	33+2	65	296	306	2130	0.77	1.17	1.97	10.5	133	2.5	2750	37+2	F	NVD	8	9	No
84	888157	18+2	29	137	159	278	1.05	0.96	1.88	33+2	65	293	297	2161	0.88	1.09	1.98	10.4	122	2.9	2850	38+2	M	NVD	8	9	No
85	978450	18+2	29	138	160	285	1.09	1.05	1.48	33+4	59	275	294	1783	0.89	1.09	1.43	10.4	129	2.5	2200	37+2	F	NVD	6	8	Yes
86	868415	18+3	30	137	160	280	1.2	1.45	1.99	33+2	64	286	319	2188	0.99	1.31	1.92	10.3	131	2.9	2850	38+3	M	NVD	6	8	Yes
87	989143	18+3	29	138	160	274	1.25	1.35	1.62	33+1	59	276	294	1769	0.78	1	1.91	10.6	133	2.6	2300	37+4	F	NVD	6	8	Yes
88	969414	18+2	30	138	161	276	1.27	1.25	1.93	33+2	68	285	313	2173	0.76	1.01	1.99	10.8	130	2.5	2900	38+2	F	NVD	8	9	No
89	966414	18+3	30	137	161	279	1.07	1.35	1.93	33+2	67	300	319	2035	0.73	0.5	1.88	10.8	129	2.4	2750	37+2	F	LSCS	8	9	No
90	432168	18+2	30	138	159	275	1.09	1.45	1.95	33+2	66	310	305	2154	0.75	1.15	2.01	10.4	123	2.8	2850	38+3	M	LSCS	8	9	No
91	234816	18+2	29	137	159	276	1.37	1.05	1.88	33+2	65	292	314	2081	0.75	0.5	2.04	10.4	128	2.6	2900	38+2	F	NVD	8	9	No
92	432190	18+3	29	137	161	277	1.2	1.05	2.06	33+2	64	300	296	2198	0.81	0.7	2.05	10.7	125	2.9	2750	37+4	M	NVD	6	8	Yes
93	413161	18+2	29	137	159	284	1.37	1.35	2.07	33+2	68	292	317	2187	0.74	1.24	2.01	10.6	124	2.5	3000	38+2	F	NVD	6	8	Yes
94	302141	18+3	29	138	175	280	1.08	1.35	2.09	33+1	65	297	306	2101	0.77	0.8	2.08	10.2	129	2.1	2900	37+2	F	LSCS	8	9	No
95	321694	18+3	30	155	168	275	1.32	1.05	1.58	33+1	66	307	300	2178	0.73	1.22	2.09	10.3	133	2	2800	38+3	M	LSCS	8	9	No
96	236192	18+3	29	148	168	284	1.24	1.66	1.88	33+4	64	294	296	2148	0.79	1	2.07	10.4	138	3	2800	38+2	M	NVD	8	9	No
97	236142	18+3	30	151	170	285	1.25	1.25	1.95	33	66	298	302	2064	0.93	1.32	2.04	10.5	136	3.1	2850	37+4	M	LSCS	8	9	No
98	324193	18+2	29	153	168	282	1.07	1.05	2.11	33+4	67	287	314	2000	0.95	1.31	2.06	10.7	138	3.1	2850	38+2	M	LSCS	8	9	No
99	279316	18+2	30	155	166	284	1.06	1.05	2.17	33	64	293	303	2117	0.88	0.7	2.09	9.9	135	1.9	2750	37+2	F	LSCS	8	9	No
100	324169	18	30	148	170	297	1.05	1.05	2.18	33	64	309	312	2156	0.99	0.5	2.07	10.4	139	1.8	2850	38+3	F	NVD	8	9	No
101	237491	18	31	146	170	292	1.35	1.45	0.93	33	68	303	303	2185	0.88	0.7	1.46	10.3	132	1.5	2950	38+2	M	NVD	8	9	Yes
102	207396	18+2	29	138	161	284	1.07	1.05	1.53	33+3	60	275	289	1815	0.77	0.8	1.45	10.4	131	2.2	2200	37+4	M	NVD	6	8	Yes
103	203692	18	31	152	169	293	1.02	1.44	2.33	33	65	306	320	2067	0.77	0.8	1.95	10.1	135	1.2	2700	38+2	M	LSCS	8	9	No
104	324196	18+2	29	139	159	279	1.25	1.44	1.44	33+2	58	273	288	1763	0.87	0.9	1.49	10.2	134	1.2	2200	37+2	M	LSCS	8	9	No
105	239182	18+2	31	153	174	300	1.05	1.44	1.05	33	65	289	306	2097	0.88	1	1.44	9.8	133	1.1	2700	38+3	M	LSCS	8	9	No
106	236182	18+1	31	150	174	297	1.02	1.44	1.44	33+1	65	310	299	2043	0.89	1.01	1.46	9.9	137	1.6	2950	38+2	F	NVD	8	9	No
107	236148	18+2	31	146	168	296	1.24	0.93	1.13	33+2	66	309	318	2021	0.99	1.31	1.47	9.7	134	1.7	2840	37+4	F	NVD	8	9	No
108	236143	18+4	30	150	170	296	1.32	0.93	1.44	33+1	66	293	300	2019	0.82	1	1.44	10.7	138	1.8	2600	37+4	F	NVD	8	9	Yes
109	329182	18+4	30	155	172	300	1.25	0.95	2.33	33+1	68	304	303	2065	1.1	1.01	1.98	10.8	139	1.9	2950	38+3	F	LSCS	8	9	No
110	872941	18+2	31	150	170	298	1.36	0.88	2.31	33+1	65	303	305	2061	1.1	1.32	1.93	10.5	140	1.5	2600	37+4	F	NVD	8	9	Yes
111	134628	18	29	155	171	291	1.22	1.99	2.28	33+1	65	305	314	2193	1.1	0.7	1.92	10.6	121	1.4	3000	38+2	F	NVD	8	9	No
112	468214	18	30	146	171	292	1.07	0.88	0.86	34+1	65	290	311	2121	1.2	1.14	1.46	10.4	126	1.3	2650	37+2	F	LSCS	8	9	No
113	236148	18	31	148	168	291	1.09	0.99	2.32	33+2	68	299	304	2174	1.1	0.5	1.99	10.4	124	1.9	2950	38+3	F	LSCS	8	9	No
114	236192	18+2	30	152	167	299	1.3	0.99	2.29	33+4	68	307	309	2160	1.1	1.09	1.88	10.3	127	2.1	3000	37+4	F	LSCS	8	9	Yes
115	237481	18	30	148	168	300	1.32	0.96	2.21	33+2	67	289	316	2167	1.2	1.17	2.01	10.6	124	2	2950	38+4	M	LSCS	8	9	No
116	346192	18	29	139	161	276	1.09	1.05	1.63	33+1	61	271	305	1753	1.2	0.8	1.44	10.8	128	2.7	2300	37+4	F	NVD	8	9	No
117	236148	18+2	30	138	161	284	1.28	1.45	1.42	34+2	64	275	307	1791	1.2	0.9	1.41	10.8	131	2.5	2300	37+4	F	NVD	8	9	No
118	326414	18	29	152	173	298	1.35	1.35	1.43	33+2	66	296	318	2125	1.1	1	1.41	10.4	115	2.9	2950	38+3	F	NVD	8	9	No
119	236142	18	30	154	170	293	1.37	1.25	0.93	33+3	64	305	302	2171	1.3	1.01	1.48	10.4	114	2.5	3050	37+4	F	NVD	8	9	No
120	324162	18	31	151	171	298	1.08	1.35	1.82	33+2	64	293	319	2151	1	1.31	2.09	10.5	117	2.4	3000	37+4	F	LSCS	8	9	No
121	324196	18	29	155	173	292	1.09	1.45	1.23	33+2	64	297	317	2028	1	1	1.47	10.7	118	2.9	2800	37+4	F	NVD	8	9	No
122	234612	18	31	151	167	296	1.35	1.05	1.62	33+4	64	286	304	2101	1.28	1.01	2.04	10.8	119	2.5	2750	37+4	F	NVD	8	9	No
123	203461	18+4	25	154	166	294	1.34	1.05	1.87	33	65	309	317	2096	1.25	0.5	2.06	9.9	117	2.9	3000	38+3	F	NVD	8	9	No
124	291692	18	25	147	172	291	1.09	1.35	1.62	33+2	64	302	302	2146	1	1.21	2.09	9.8	114	2.6	2750	37+4	F	NVD	8	9	No
125	324192	18+1	25	145	170	297	1.33	1.35	1.88	33+4	68	289	312	2006	1.22	1.1	2.07	9.7	112	2.5	2900	37+4	F	NVD	8	9	No
126	236182	18+2	31	137	160	275	1.27	1.05	1.52	33+1	65	276	298	1818	1.36	0.7	2.09	9.6	118	2.4	2100	37+4	F	LSCS	6	8	Yes
127	329143	18+1	27	149	167	293	1.28	1.66	1.58	33+6	67	292	310	2183	1.25	0.8	2.05	9.8	116	2.8	2950	38+3	F	LSCS	8	9	Yes
128	236481	18+2	27	147	169	295	1.31	1.25	1.57	33+6	68	305	317	2103	0.79	1.07	1.95	9.9	115	2.6	3050	37+4	M	NVD	8	9	Yes
129	324169	18+2	27	139	159	285	1.05	1.05	1.52	33+2	68	273	300	1776	1.41	0.9	1.41	9.8	112	2.9	2300	37+6	F	NVD	6	8	Yes
130	419321	18+2	26	146	173	298	1.09	1.05	1.78	33+4	65	306	311	2139	0.95	1.8	1.94	9.9	122	2.5	3000	38+3	F	NVD	8	9	No
131	920161	18+2	26	151	173	297	1.2	1.05	1.88	33+4	64	287	300	2020	0.88	1.01	1.96	10.4	122	2.1	3050	37+4	F	LSCS	8	9	No
132	920190	18	27	152	173	299	1.25	1.45	1.99	33	65	295	312	2038	0.99	1.31	1.97	10.3	111	2	2950	37+4	F	LSCS	8	9	No
133	920215	18+2	28	147	172	300	1.27	1.05	1.88	33+2	64	303	315	2032	0.88	1	1.94	10.4	123	3	2950	38+4	M	NVD	8	9	No
134	918121	18	28	149	171	296	1.07	1.44	1.99	33	65	303	307	2025	0.77	1.01	1.98	10.1	128	3.1	2750	37+4	M	LSCS	8	9	Yes
135	917457	18	28	145	168	291	1.09	1.44	1.99	33	68	285	308	2124	0.77	1	1.93	10.2	125	3.1	2600	37+4	M	LSCS	6	8	Yes
136	909524	18	27	154	166	292	1.38	1.44	1.96	33	67	308	308	2060	0.87	1.01	1.92	9.8	124	1.9	2950	38+3	F	LSCS	8	9	No
137	924063	18	27	149	169	291	1.03	1.44	1.94	33+2	64	292	316	2122	0.88	1.31	1.91	9.9	129	1.8	2950	38+2	F	NVD	6	8	Yes
138	807750	18	28	147	165	294	1.09	0.99	1.96	33	67	304	297	2012	0.89	1	1.99	9.7	133	1.5	3100	37+4	M	NVD	8	9	No
139	921044	18+2	25	149	167	297	1.07	0.96	1.97	33+2	66	302	316	2095	0.99	1.01	1.88	10.7	138	2.2	2700	37+6	M	NVD	8	9	No
140	923217	18+2	25	147	167	300	1.06	0.94	1.87	33+2	66	289	303	2051	0.82	0.5	2.01	10.8	136	2.9	2950	38+3	M	NVD	8	9	No
141	923095	18+4	27	153	169	294	1.05	0.96	1.87	33+2	64	301	296	2011	1.1	0.7	2.04	10.5	138	2.5	2850	37+4	F	NVD	8	9	No
142	824159	18+2	26	146	169	297	1.3	0.97	1.87	33+2	68	306	299	2027	1.1	0.7	2.05	10.6	135	2.9	3050	37+4	F	NVD	8	9	No
143	117906	18+2	28	152	172	291	1.07	0.87	1.87	33+2	64	287	308	2020	1.1	0.5	2.01	10.4	139	2.6	2950	38+4	F	NVD	8	9	No
144	923022	18+4	25	148	167	300	1.02	0.87	1.88	33+2	68	296	316	2134	1.2	0.7	2.08	10.4	132	2.5	3000	37+4	F	NVD	8	9	No
145	701848	18+2	25	152	165	291	1.25	0.87	1.99	33+3	66	304	301	2195	1.1	0.8	2.09	10.3	131	2.4	2900	37+4	F	LSCS	8	9	No
146	192760	18	26	139	160	276	1.05	0.87	1.51	33+1	68	272	308	1791	1.39	0.8	1.47	10.6	135	2.8	2280	37+6	F	LSCS	8	9	No
147	908550	18	28	152	166	299	1.02	0.88	1.93	33+1	65	304	307	2131	1.2	0.9	2.04	10.8	134	2.6	2950	38+3	F	NVD	8	9	No
148	918633	18+1	25	147	165	297	1.24	0.89	1.93	33+1	65	296	318	2132	1.2	1	2.06	10.8	133	2.9	2700	37+4	F	NVD	8	9	No
149	917436	18+2	28	145	172	291	1.32	0.99	1.95	33+2	67	300	310	2033	1.2	1.01	2.09	10.4	137	2.5	2850	37+4	F	NVD	8	9	No
150	919841	18	26	155	167	299	1.25	0.93	2.06	33+2	68	292	311	2074	1.1	1.31	2.07	10.7	134	2.1	3000	38+4	F	LSCS	8	9	No
151	935307	18+1	25	138	159	281	1.36	1.93	1.38	33+1	67	276	312	2041	1.34	1	1.41	10.6	138	2	2150	37+4	F	LSCS	8	9	No
152	935142	18+2	28	149	169	300	1.33	0.95	2.07	33+2	66	302	298	2168	1	1.01	2.05	10.2	139	3	2950	38+1	F	NVD	8	9	No
153	213023	18	28	150	172	295	1.07	0.88	1.58	33+2	64	295	317	2084	1	0.5	1.94	10.3	140	3.1	3150	38+2	M	LSCS	8	9	No
154	987102	18	27	149	173	298	1.09	0.99	1.78	33+2	68	308	312	2057	1.28	0.7	1.95	10.4	121	3.1	3150	38+3	M	LSCS	6	8	Yes

Sr. No	MRD No	Admission No	Age	Married Since	Occupation	Protein and calories intake	Education	Pre-Pregnancy Weight	Husband Height	Patient Height	PRE BMI	Obstetric Formula Gravida	Parity	Live	Abortion	POG	B.P	Weight	B.M.I	VISIT 2 (POG)	B.P	Weight	B.M.I	SFH VS POG(24 weeks)	SFH VS POG(28 weeks)	Visit 3	B.P	Weight	B.M.I	SFH VS POG(32 weeks)	SFH VS POG(36 weeks)
155	987404	2020065021	30	7	Employed	Adequate	Postgraduation	58	5"8	162	22.10	3	1	1	1	18+2	120/70	60	22.9	28+2	120/80	66	25.15	Corresponding	Corresponding	31+3	120/80	70	26.5	Corresponding	Corresponding
156	943601	2020074019	28	5	Employed	Inadequate	Graduation	59	5"8	162	22.48	2	1	-	-	19	110/70	62	23.6	27+2	100/60	67	25.53	Corresponding	Corresponding	31+3	110/70	70	26.5	Corresponding	Corresponding
157	991451	2020042501	26	4	Employed	Adequate	Postgraduation	64	5"8	157	25.96	2	1	1	-	19	120/80	67	27.2	28+2	120/70	72	29.21	Corresponding	Corresponding	31+3	120/70	73	28.5	Corresponding	Corresponding
158	504082	2020025391	34	9	Employed	Adequate	Postgraduation	59	5"8	162	22.48	2	1	1	-	18+4	120/70	62	23.6	27+2	110/70	67	25.53	Corresponding	Corresponding	32+3	120/80	71	26.9	Corresponding	Corresponding
159	841210	2020025354	34	10	Employed	Adequate	Postgraduation	62	5"8	162	23.62	3	1	1	1	19	110/70	65	24.8	28+2	110/80	70	26.67	Corresponding	Corresponding	32+3	120/80	72	27.2	Not Corresponding	Not Corresponding
160	644521	2020025348	27	5	Employed	Adequate	Postgraduation	60	5"5	168	21.26	2	1	1	-	19	120/70	63	22.3	27+2	110/60	68	24.09	Corresponding	Corresponding	32+4	100/60	70	28.2	Corresponding	Corresponding
161	644380	2020025332	27	4	Employed	Inadequate	Postgraduation	58	5"8	157	23.53	1	-	-	-	17+4	110/60	60	24.3	28+3	110/60	66	26.78	Corresponding	Corresponding	32+2	120/70	68	26.6	Corresponding	Corresponding
162	874771	2020025329	30	6	Employed	Adequate	Postgraduation	62	5"8	165	22.77	2	1	1	-	19	100/70	65	23.9	27+2	110/80	70	25.71	Corresponding	Corresponding	32+2	120/70	71	26	Corresponding	Corresponding
163	925193	2020025223	32	9	Employed	Adequate	Postgraduation	58	5"8	162	22.10	2	1	1	-	19	120/70	60	22.9	27+2	120/70	66	25.15	Corresponding	Corresponding	32+2	110/70	70	25.7	Corresponding	Corresponding
164	925210	2020025227	29	5	Employed	Adequate	Postgraduation	58	5"8	162	22.10	2	1	-	-	18+5	100/70	60	22.9	28+3	110/80	66	25.15	Corresponding	Corresponding	32+3	120/80	67	25.4	Corresponding	Corresponding
165	925174	2020025196	30	2	Unemployed	Adequate	UnderGraduation	54	5"5	168	19.13	1	-	-	-	18+2	110/80	57	20.2	27+3	120/70	62	21.97	Corresponding	Not Corresponding	33+5	120/80	66	26.6	Not Corresponding	Not Corresponding
166	163523	2020035421	25	3	Employed	Adequate	Graduation	57	5"8	157	23.12	1	-	-	-	18+3	120/70	60	24.3	28+3	110/80	65	26.37	Corresponding	Corresponding	32+5	110/70	64	25.8	Corresponding	Corresponding
167	934677	2020030626	28	3	Employed	Adequate	Graduation	58	5"9	165	21.30	1	-	-	-	18+4	110/80	60	22.0	27+2	110/80	66	24.24	Corresponding	Corresponding	32+0	120/80	64	25.2	Corresponding	Corresponding
168	834274	2020030446	22	2	Employed	Adequate	Postgraduation	52	5"5	168	18.42	2	1	1	-	18+2	120/60	55	19.5	28+3	120/80	60	21.26	Corresponding	Corresponding	32+0	120/60	59	23.8	Corresponding	Corresponding
169	934082	2020080294	28	3	Employed	Adequate	Graduation	64	5"8	162	24.39	2	1	1	-	18+3	100/70	67	25.5	28+2	110/70	72	27.43	Corresponding	Corresponding	32+0	120/70	71	28.6	Corresponding	Corresponding
170	927151	2020030460	33	2	Unemployed	Inadequate	UnderGraduation	58	5"5	168	20.55	2	1	1	-	18+4	100/60	60	21.3	28+2	120/80	66	23.38	Corresponding	Corresponding	33+0	100/60	64	25.3	Corresponding	Corresponding
171	934321	2020030452	22	3	Employed	Adequate	Postgraduation	64	5"9	167	22.95	2	1	1	-	18+3	120/70	67	24.0	27+3	110/80	72	25.82	Corresponding	Corresponding	32+0	120/70	71	28.8	Corresponding	Corresponding
172	871848	2020030341	29	2	Employed	Adequate	Graduation	56	5"5	168	19.84	3	1	1	1	18+2	110/70	69	24.4	28+2	120/80	64	22.68	Corresponding	Corresponding	32+0	120/70	73	29.4	Corresponding	Not Corresponding
173	933758	2020030148	33	3	Employed	Adequate	Graduation	63	5"9	165	23.14	2	1	1	-	18+5	110/80	66	24.2	27+2	100/60	71	26.08	Corresponding	Corresponding	33+0	120/80	69	27.8	Corresponding	Corresponding
174	920475	2020020887	28	3	Employed	Adequate	Graduation	50	5"8	157	20.28	2	1	1	-	18+3	120/70	53	21.5	28+2	120/70	58	23.53	Corresponding	Corresponding	32+0	110/80	57	23	Corresponding	Corresponding
175	920008	2020020405	26	2	Employed	Adequate	Graduation	57	5"5	168	20.20	2	1	1	-	18+2	120/70	60	21.3	28+2	100/60	65	23.03	Corresponding	Corresponding	32+0	110/70	64	25.8	Corresponding	Corresponding
176	182550	2020020658	25	2	Employed	Adequate	Graduation	50	5"5	168	17.72	2	1	1	-	18+4	120/70	53	18.8	27+2	120/70	58	20.55	Corresponding	Corresponding	32+0	120/70	57	23	Corresponding	Corresponding
177	591207	2020020683	26	3	Employed	Inadequate	Postgraduation	55	5"8	157	22.31	1	-	-	-	18+3	110/60	58	23.5	28+2	110/70	63	25.56	Corresponding	Corresponding	32+0	120/60	62	25.2	Corresponding	Corresponding
178	150887	2020020672	30	2	Employed	Adequate	Postgraduation	53	5"5	168	18.78	3	1	1	1	18+2	110/80	56	19.8	27+3	120/80	61	21.61	Corresponding	Corresponding	33+0	120/80	60	24.2	Corresponding	Corresponding
179	888085	2020006360	31	3	Employed	Adequate	Graduation	64	5"6	164	23.80	3	1	1	1	18+3	120/70	67	24.9	28+3	110/70	72	26.77	Corresponding	Corresponding	33+6	110/80	71	28.6	Not Corresponding	Not Corresponding
180	783121	2020006480	28	2	Employed	Adequate	Postgraduation	63	5"9	165	23.14	2	1	1	-	18+2	120/60	66	24.2	27+3	120/80	71	26.08	Corresponding	Corresponding	32+6	120/60	70	28.1	Corresponding	Corresponding
181	888121	2020006416	27	2	Employed	Adequate	Graduation	56	5"5	168	19.84	2	1	1	-	18+3	120/80	59	20.9	28+3	110/80	64	22.68	Corresponding	Corresponding	32+6	120/80	63	25.4	Corresponding	Corresponding
182	888157	2020006406	33	2	Employed	Adequate	Graduation	55	5"5	168	19.49	2	1	1	-	18+2	110/60	58	20.5	27+3	120/80	63	22.32	Corresponding	Corresponding	33+6	120/60	62	25.2	Corresponding	Corresponding
183	888167	2020006414	26	3	Employed	Adequate	Graduation	57	5"8	157	23.12	2	1	1	-	18+3	120/70	60	24.3	28+2	110/70	65	26.37	Corresponding	Corresponding	32+6	110/70	64	25.6	Not Corresponding	Not Corresponding
184	820285	2020006964	29	2	Employed	Adequate	Graduation	61	5"9	167	21.87	3	1	1	1	18+2	110/70	64	22.9	27+2	120/80	69	24.74	Corresponding	Corresponding	32+6	120/70	68	27.4	Corresponding	Corresponding
185	102802	2020004657	30	2	Employed	Adequate	Postgraduation	52	5"5	168	18.42	1	-	-	-	18+3	120/80	55	19.5	28+3	110/70	60	21.26	Corresponding	Corresponding	33+4	120/80	59	23.7	Corresponding	Corresponding
186	820825	2020008485	27	3	Unemployed	Adequate	UnderGraduation	62	5"9	167	22.23	2	1	1	-	18+3	110/70	65	23.3	27+3	120/80	70	25.10	Corresponding	Corresponding	33+2	120/70	69	27.8	Corresponding	Corresponding
187	985560	2020003335	28	3	Employed	Adequate	Graduation	55	5"8	157	22.31	2	1	1	-	18+3	120/70	58	23.5	28+2	120/70	63	25.56	Corresponding	Corresponding	32+3	120/70	62	25.1	Corresponding	Corresponding
188	851246	2020001212	32	2	Employed	Adequate	Graduation	59	5"5	168	20.90	1	-	-	-	18+2	120/70	62	22.0	27+3	110/80	67	23.74	Corresponding	Corresponding	33+1	100/70	66	26.5	Corresponding	Corresponding
189	272743	2020005560	28	3	Employed	Inadequate	Postgraduation	60	5"8	162	22.86	2	1	1	-	18+3	120/70	63	24.0	28+2	100/70	68	25.91	Corresponding	Corresponding	32+5	120/70	67	25.4	Corresponding	Corresponding
190	103009	2020003335	26	2	Employed	Adequate	Postgraduation	63	5"9	165	23.14	1	-	-	-	18+2	110/70	66	24.2	28+2	110/60	71	26.08	Corresponding	Corresponding	32+3	120/70	70	25.7	Corresponding	Corresponding
191	103017	2020004449	27	2	Unemployed	Adequate	UnderGraduation	52	5"5	168	18.42	2	1	1	-	18+2	110/80	55	19.5	27+3	120/70	60	21.26	Corresponding	Corresponding	32+4	120/80	59	23.8	Corresponding	Corresponding
192	103917	2020009955	28	3	Employed	Adequate	Postgraduation	55	5"8	157	22.31	1	-	-	-	18+3	120/80	58	23.5	27+2	110/70	63	25.56	Corresponding	Corresponding	32+2	100/80	62	25.1	Corresponding	Corresponding
193	793475	2020002341	30	2	Employed	Adequate	UnderGraduation	59	5"5	168	20.90	2	1	1	-	18+2	120/70	62	22.0	28+2	110/70	67	23.74	Corresponding	Corresponding	33+2	120/70	66	26.6	Corresponding	Corresponding
194	103044	2020007475	27	2	Employed	Adequate	UnderGraduation	62	5"8	162	23.62	2	1	1	-	18+2	120/80	65	24.8	27+2	100/60	70	26.67	Corresponding	Corresponding	32+3	120/80	69	25.3	Corresponding	Corresponding
195	766614	2020001183	29	3	Employed	Inadequate	UnderGraduation	54	5"8	157	21.91	2	1	1	-	18+3	110/70	57	23.1	27+3	120/70	62	25.15	Corresponding	Corresponding	32+1	120/70	61	24.6	Corresponding	Corresponding
196	229775	2020006160	28	3	Unemployed	Adequate	UnderGraduation	53	5"8	157	21.50	3	1	1	1	18+3	120/80	56	22.7	28+3	110/70	61	24.75	Corresponding	Corresponding	32+6	110/70	60	24.4	Corresponding	Corresponding
197	908842	2020008654	29	2	Employed	Inadequate	UnderGraduation	51	5"5	168	18.07	2	1	1	-	18+2	100/70	54	19.1	28+4	110/70	59	20.90	Corresponding	Corresponding	32+3	120/70	58	23.1	Corresponding	Corresponding
198	843156	2020008542	30	3	Employed	Adequate	UnderGraduation	60	5"8	162	22.86	1	-	-	-	18+3	100/60	63	24.0	28+3	110/70	68	25.91	Corresponding	Corresponding	32+4	120/60	67	24.8	Corresponding	Corresponding
199	563289	2020009269	32	2	Employed	Adequate	UnderGraduation	54	5"5	168	19.13	1	-	-	-	18+2	120/80	58	20.5	28+3	120/80	62	21.97	Corresponding	Corresponding	33+1	120/80	62	24.8	Corresponding	Corresponding
200	986011	2020003355	28	2	Unemployed	Adequate	UnderGraduation	57	5"5	168	20.20	1	-	-	-	18+2	110/70	61	21.6	27+3	120/80	65	23.03	Corresponding	Corresponding	33+3	120/70	65	26.2	Corresponding	Corresponding
201	103354	2020009986	30	3	Unemployed	Adequate	UnderGraduation	63	5"8	162	24.01	2	1	1	-	18+3	120/70	66	25.1	27+2	110/80	71	27.05	Corresponding	Corresponding	32+1	110/80	70	28	Corresponding	Corresponding
202	524613	2020001241	26	2	Unemployed	Adequate	UnderGraduation	52	5"9	167	18.65	3	1	1	1	18+2	110/70	55	19.7	28+2	110/80	60	21.51	Corresponding	Corresponding	32+1	120/70	59	21	Corresponding	Corresponding
203	945213	2020008932	27	3	Unemployed	Adequate	UnderGraduation	56	5"8	157	22.72	2	1	1	-	18+3	110/60	59	23.9	28+3	120/70	64	25.96	Corresponding	Corresponding	32+4	120/60	63	25.4	Not Corresponding	Not Corresponding
204	236984	2020002546	30	3	Unemployed	Adequate	UnderGraduation	59	5"5	168	20.90	2	1	1	-	18+3	120/70	62	22.0	28+3	110/80	67	23.74	Corresponding	Corresponding	33+2	120/70	66	26.6	Corresponding	Corresponding
205	895600	2020007475	28	3	Employed	Inadequate	Graduation	62	5"9	165	22.77	2	1	1	-	18+3	110/80	65	23.9	28+3	120/70	70	25.71	Corresponding	Corresponding	32+4	120/80	69	27.8	Corresponding	Corresponding
206	542368	2020007800	27	3	Employed	Adequate	Graduation	55	5"8	157	22.31	2	1	1	-	18+3	120/70	58	23.5	27+3	110/70	63	25.56	Corresponding	Corresponding	32+4	110/60	62	25	Corresponding	Corresponding
207	236978	2020001249	33	2	Employed	Adequate	Graduation	58	5"5	168	20.55	3	1	1	1	18+2	120/80	61	21.6	27+3	110/80	66	23.38	Corresponding	Corresponding	33+1	120/80	65	26.2	Corresponding	Corresponding
208	700891	2020008800	30	2	Employed	Adequate	Graduation	63	5"6	164	23.42	2	1	1	-	18+2	120/80	66	24.5	28+2	120/70	71	26.40	Corresponding	Corresponding	33+3	120/80	70	28.2	Corresponding	Corresponding
209	653258	2020009863	29	2	Employed	Adequate	Graduation	53	5"5	168	18.78	1	-	-	-	18+2	110/70	56	19.8	28+3	110/70	61	21.61	Corresponding	Corresponding	34+2	120/70	60	24.2	Corresponding	Corresponding
210	304077	2020001367	30	3	Employed	Adequate	Graduation	50	5"8	157	20.28	1	-	-	-	18+3	120/70	53	21.5	28+2	110/80	58	23.53	Corresponding	Corresponding	33+1	110/80	57	23	Corresponding	Corresponding
211	972025	2020008025	29	3	Employed	Adequate	Graduation	63	5"8	162	24.01	2	1	1	-	18+3	110/70	66	25.1	28+3	120/70	71	27.05	Corresponding	Corresponding	31+4	120/70	70	26.5	Corresponding	Not Corresponding
212	180250	2020001364	25	2	Employed	Adequate	Graduation	52	5"5	168	18.42	2	1	1	-	18+2	110/80	55	19.5	28+3	100/60	60	21.26	Corresponding	Corresponding	32+1	120/80	59	23.8	Corresponding	Corresponding
213	102265	2020001820	31	2	Unemployed	Adequate	UnderGraduation	55	5"5	168	19.49	2	1	1	-	18+2	100/70	58	20.5	28+3	110/80	63	22.32	Corresponding	Corresponding	33+1	120/70	62	25	Corresponding	Corresponding
214	242048	2020005321	29	3	Unemployed	Adequate	UnderGraduation	58	5"8	157	23.53	2	1	1	-	18+3	110/80	60	24.3	27+3	120/80	66	26.78	Corresponding	Corresponding	32+5	120/80	64	25.8	Corresponding	Corresponding
215	242015	2020008426	30	3	Unemployed	Adequate	UnderGraduation	51	5"8	157	20.69	2	1	1	-	18+3	100/70	54	21.9	27+3	100/60	59	23.94	Corresponding	Corresponding	32+5	110/80	58	23.4	Corresponding	Corresponding
216	523698	2020009000	31	2	Unemployed	Adequate	UnderGraduation	63	5"5	168	22.32	2	1	1	-	18+2	100/70	66	23.4	28+3	100/70	71	25.16	Corresponding	Corresponding	32+1	120/70	70	28.2	Corresponding	Corresponding
217	820875	2020001031	26	2	Employed	Inadequate	Graduation	52	5"5	168	18.42	2	1	1	-	18+2	120/80	55	19.5	28+3	110/70	60	21.26	Corresponding	Corresponding	32+1	120/80	59	23.8	Corresponding	Corresponding
218	105642	2020004213	28	3	Employed	Adequate	UnderGraduation	59	5"8	157	23.94	2	1	1	-	18+3	120/70	62	25.2	28+3	120/80	67	27.18	Corresponding	Corresponding	32+4	120/70	64	25.8	Corresponding	Corresponding
219	563894	2020002021	31	3	Employed	Adequate	UnderGraduation	55	5"8	157	22.31	2	1	1	-	18+3	110/60	58	23.5	28+2	120/70	63	25.56	Corresponding	Corresponding	33+2	120/60	62	25	Corresponding	Corresponding
220	106727	2020008143	29	3	Employed	Adequate	UnderGraduation	53	5"5	168	18.78	2	1	1	-	18+3	120/80	55	19.5	27+2	110/60	61	21.61	Corresponding	Corresponding	32+6	120/80	59	23.8	Corresponding	Corresponding
221	542364	2020008654	30	2	Employed	Adequate	UnderGraduation	57	5"5	168	20.20	2	1	1	-	18+2	110/60	60	21.3	28+2	120/80	65	23.03	Corresponding	Corresponding	33+2	120/80	64	25.8	Corresponding	Corresponding
222	120456	2020008754	27	2	Unemployed	Inadequate	UnderGraduation	52	5"6	164	19.33	1	-	-	-	18+2	110/70	55	20.4	27+2	110/80	60	22.31	Corresponding	Corresponding	32+4	120/70	59	23.8	Corresponding	Corresponding
223	367842	2020009645	29	3	Employed	Adequate	UnderGraduation	54	5"8	157	21.91	1	-	-	-	18+3	120/80	57	23.1	28+2	120/70	62	25.15	Corresponding	Corresponding	32+4	120/80	61	24.6	Not Corresponding	Not Corresponding
224	103254	2020003254	26	3	Employed	Adequate	Graduation	56	5"8	157	22.72	1	-	-	-	18+3	120/80	59	23.9	28+2	110/60	64	25.96	Corresponding	Corresponding	32+3	120/80	63	25.4	Corresponding	Corresponding
225	103356	2020002233	31	2	Employed	Adequate	UnderGraduation	59	5"5	168	20.90	1	-	-	-	18+2	110/80	62	22.0	27+2	120/70	67	23.74	Corresponding	Corresponding	33+2	120/80	66	26.6	Corresponding	Corresponding
226	104578	2020002224	33	3	Employed	Adequate	Graduation	61	5"8	162	23.24	3	1	1	1	18+3	100/70	63	24.0	28+2	120/80	69	26.29	Corresponding	Corresponding	33+2	120/70	67	25.4	Corresponding	Corresponding
227	110546	2020001863	26	2	Employed	Adequate	Graduation	64	5"9	167	22.95	2	1	1	-	18+2	120/80	67	24.0	27+2	120/70	72	25.82	Corresponding	Corresponding	32+1	110/70	71	25.3	Corresponding	Corresponding
228	101964	2020005048	32	2	Employed	Inadequate	UnderGraduation	53	5"5	168	18.78	3	1	1	-	18+2	110/80	56	19.8	27+2	120/80	61	21.61	Corresponding	Corresponding	33+5	120/80	60	24.2	Corresponding	Corresponding
229	110894	2020007532	27	2	Employed	Adequate	UnderGraduation	52	5"6	164	19.33	2	1	1	-	18+3	120/80	55	20.4	28+2	110/70	60	22.31	Corresponding	Corresponding	32+5	120/80	59	23.8	Corresponding	Corresponding
230	102542	2020001002	30	2	Employed	Adequate	UnderGraduation	55	5"5	168	19.49	2	1	1	-	18+2	110/70	58	20.5	27+2	110/80	63	22.32	Corresponding	Corresponding	33+1	120/70	62	25	Corresponding	Corresponding
231	100865	2020004445	25	2	Employed	Adequate	UnderGraduation	57	5"5	168	20.20	2	1	1	-	18+2	120/80	60	21.3	27+2	120/80	65	23.03	Corresponding	Corresponding	32+4	120/80	64	25.8	Corresponding	Corresponding

Sr. No	MRD No	Second Trimester Ultrasound(POG)	Femur Length (mm)	Abdominal circumference (mm)	Head circumference (mm)	Estimated Fetal Weight(gm)	UMBLICAL ARTERY Pulsatile Index on Second Trimester Scan	UTERINE ARTERY Pulsatile Index On Second Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index On Second Trimester Ultrasound	Third Trimester Ultrasound (POG)	Femur Length (mm)	Abdominal circumference	Head circumference	Estimated Fetal Weight	UMBLICAL ARTERY Pulsatile Index on Third Trimester Ultrasound	UTERINE ARTERY Pulsatile Index On Third Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index on Third Trimester Ultrasound	HB	RBS	TSH	Weight	POG at delivery	Sex	Mode of delivery	Apgar at 1 min	Apgar at 5 min	NICU admission
155	987404	19	26	145	168	298	1.3	0.88	1.57	33+2	64	296	318	2099	1.29	0.5	1.98	10.5	126	1.9	3150	38+3	F	LSCS	8	9	No
156	943601	19	25	150	165	294	1.32	0.99	1.78	33+2	64	288	299	2152	1	0.7	1.95	10.7	124	1.8	3150	38+3	F	NVD	8	9	No
157	991451	17+4	28	154	170	292	1.09	0.99	1.88	33+2	65	291	299	2085	1.3	0.8	1.95	9.9	127	1.5	2900	37+4	F	NVD	6	8	Yes
158	504082	19	27	152	168	293	1.28	0.96	1.99	33+2	67	309	303	2075	1.2	0.8	1.90	10.4	124	2.2	3000	37+5	F	NVD	6	8	Yes
159	841210	19	25	148	168	292	1.35	1.05	1.88	33+2	64	289	312	2111	0.89	0.9	1.98	10.3	128	2.3	2850	37+4	F	LSCS	6	8	Yes
160	644521	18+5	28	147	171	291	1.39	1.45	1.99	33+2	65	309	305	2164	0.99	1	1.99	10.4	131	2.1	2700	37+4	F	LSCS	8	9	No
161	644380	18+2	26	146	169	293	1.08	1.35	1.99	33+4	65	304	317	2187	0.78	1.01	1.93	10.1	137	2.5	2650	37+5	F	NVD	6	8	Yes
162	874771	18+3	28	154	168	291	1.09	1.25	1.96	33+1	68	298	301	2171	0.76	1	1.95	10.2	136	1.2	2950	37+2	M	LSCS	6	8	Yes
163	925193	18+4	26	155	167	298	1.35	1.35	1.94	33	66	291	317	2022	0.73	1.01	1.99	9.5	113	1.2	2820	37+2	M	LSCS	6	8	Yes
164	925210	18+2	25	154	171	300	1.34	1.45	1.87	33	67	299	311	2155	0.75	1.31	1.94	9.9	114	1.1	2950	38+5	M	LSCS	8	9	No
165	925174	18+3	28	139	158	273	1.09	1.05	1.54	33+5	64	275	314	2054	1.33	1	1.46	9.8	113	1.6	2300	37+4	F	NVD	8	9	No
166	163523	18+4	26	137	158	274	1.39	1.05	1.38	33+1	65	278	303	2114	1.33	1.01	1.97	9.7	133	1.7	2400	37+4	F	NVD	8	9	No
167	934677	18+3	27	155	174	292	1.27	1.35	1.87	33	66	291	312	2114	0.77	0.5	1.94	9.6	113	1.8	3150	38+3	F	NVD	8	9	No
168	834274	18+2	25	146	168	300	1.05	1.35	1.87	33+1	68	299	308	2169	0.73	0.7	1.98	9.8	113	1.9	3150	38+3	F	LSCS	8	9	No
169	934082	18+5	26	148	175	292	1.09	1.05	1.87	33+1	64	295	302	2035	0.79	0.7	1.93	9.9	140	1.5	2650	37+4	M	NVD	8	9	No
170	927151	18+2	26	153	168	298	1.2	0.87	1.88	33+1	66	289	299	2108	0.93	0.5	1.92	9.8	115	1.4	3150	38+2	M	NVD	8	9	No
171	934321	18+3	27	153	170	300	1.25	0.88	1.89	33+1	66	286	302	2117	0.95	0.7	1.91	9.9	114	1.3	2750	37+2	F	LSCS	6	8	Yes
172	871848	18+4	28	151	165	299	1.27	0.89	1.99	33+1	65	288	303	2180	0.88	0.8	1.99	10.4	117	1.9	3150	38+3	F	LSCS	8	9	No
173	933758	18+2	26	148	172	292	1.07	0.99	1.93	33+2	66	298	320	2035	0.99	0.8	1.88	10.3	118	2.1	2600	37+4	F	LSCS	8	9	No
174	920475	18+3	28	148	171	293	1.09	0.93	1.93	33+4	65	308	303	2036	0.88	0.9	2.01	10.4	119	2	2800	38+3	M	LSCS	8	9	No
175	920008	18+4	25	154	165	297	1.39	0.93	1.95	33+4	66	286	313	2033	0.77	1	2.04	10.1	117	2.7	3150	38+3	F	NVD	8	9	No
176	182550	18+3	26	155	167	291	1.2	0.95	2.06	33+4	68	289	318	2019	0.77	1.01	2.05	10.2	114	2.5	3150	38+3	F	NVD	8	9	No
177	591207	18+2	25	138	158	274	1.37	0.88	0.88	33+1	65	283	313	2050	1.34	1.31	2.01	9.8	112	2.9	2400	37+4	F	NVD	6	8	Yes
178	150887	18+5	27	154	175	293	1.08	0.99	2.09	33+2	66	292	310	2095	0.88	1	2.08	9.9	118	2.5	3150	38+2	M	NVD	8	9	No
179	888085	18+3	27	137	160	279	1.32	0.99	1.38	33+6	65	307	302	2083	1.35	1.01	1.41	9.7	116	2.4	2220	37+2	M	LSCS	8	9	No
180	783121	18+2	26	147	165	295	1.24	0.96	1.58	33	64	298	304	2055	0.99	0.5	2.07	10.7	115	2.9	3150	38+3	F	NVD	8	9	No
181	888121	18+4	30	152	172	295	1.25	0.94	1.88	33	65	294	310	2158	0.78	0.7	2.04	10.8	112	2.5	2800	37+4	F	NVD	8	9	No
182	888157	18+3	30	145	166	292	1.07	0.96	1.95	33+6	65	285	304	2103	0.76	0.5	2.06	10.5	122	2.9	3150	38+2	F	NVD	8	9	No
183	888167	18+2	29	152	172	294	1.06	0.97	2.11	33	66	301	298	2058	0.73	0.7	2.09	10.6	122	2.6	3000	37+2	F	NVD	8	9	No
184	820285	18+3	31	147	170	296	1.05	0.87	2.17	33	64	303	311	2180	0.75	0.8	2.07	10.4	111	2.5	3000	37+6	F	NVD	8	9	No
185	102802	18+2	29	145	168	294	1.4	0.87	2.18	33+4	66	293	319	2161	0.75	0.8	2.09	10.4	123	2.4	3050	37+4	F	LSCS	6	8	Yes
186	820825	18+3	30	151	172	297	1.07	0.87	0.93	33+2	64	304	320	2157	0.81	0.9	1.45	10.3	128	2.8	3250	38+3	M	LSCS	6	8	Yes
187	985560	18+2	26	138	160	283	1.02	1.87	1.33	33+1	66	288	303	2071	1.33	1	1.43	10.6	125	2.6	2300	37+4	M	NVD	8	9	No
188	851246	18+3	29	153	174	299	1.25	0.88	0.94	33+1	65	285	301	2067	0.77	1.01	1.45	10.8	124	2.9	3250	38+2	F	NVD	8	9	No
189	272743	18+2	30	148	175	298	1.05	0.89	2.33	33+2	68	308	312	2045	0.73	1	1.99	10.8	129	2.5	2850	37+2	F	NVD	8	9	No
190	103009	18+3	31	148	167	295	1.02	0.99	1.05	33+2	68	296	319	2195	0.79	1.01	1.43	10.4	133	2.1	3250	38+3	F	LSCS	8	9	No
191	103017	18+3	30	152	169	292	1.22	0.93	1.44	33+2	64	299	304	2038	0.93	1.31	1.96	10.7	138	2	2600	37+4	M	LSCS	6	8	Yes
192	103917	18+3	31	155	172	299	1.32	0.93	1.13	33+2	68	298	305	2197	0.95	1	1.47	10.6	136	3	2750	37+6	M	LSCS	6	8	Yes
193	793475	18	31	152	175	295	1.25	0.95	1.44	33+2	65	306	306	2162	0.88	1.01	1.43	10.2	138	3.1	3250	38+3	M	LSCS	6	8	Yes
194	103044	19	31	145	166	295	1.36	0.88	2.33	33+2	64	290	305	2130	0.99	0.5	1.98	10.3	135	3.1	3250	38+3	M	LSCS	8	9	No
195	766614	19	31	149	169	292	1.33	0.99	2.31	33+2	68	304	314	2117	0.88	0.7	1.93	10.4	139	1.9	3250	38+3	F	LSCS	6	8	Yes
196	229775	17+4	30	147	166	296	1.07	0.88	2.28	33+2	66	301	309	2169	0.77	0.7	1.92	10.5	132	1.8	3250	38+3	F	NVD	6	8	Yes
197	908842	19	29	149	171	297	1.09	0.99	0.86	33+2	64	294	310	2032	0.77	0.5	1.49	10.7	131	1.5	2750	37+4	F	NVD	6	8	Yes
198	843156	18+4	29	150	166	295	1.3	0.99	2.32	33+2	64	304	305	2131	0.87	0.7	1.99	10.8	135	2.2	2800	38+3	M	NVD	6	8	Yes
199	563289	18+3	31	152	167	292	1.32	0.96	2.29	33+1	66	290	309	2026	0.88	0.8	1.88	9.9	134	1.2	2650	37+2	M	LSCS	8	9	No
200	986011	18+2	31	153	169	300	1.32	1.05	2.33	33+3	68	309	304	2059	0.89	0.8	2.01	9.8	133	1.2	2800	37+2	M	LSCS	8	9	No
201	103354	18+5	29	151	170	296	1.25	1.45	0.92	33+1	67	289	317	2021	0.99	0.9	1.44	9.7	137	2.5	3250	38+3	F	NVD	8	9	No
202	524613	18+3	29	149	175	298	1.36	1.35	2.21	33+1	66	291	320	2187	1.32	1	2.05	9.6	134	2.9	3250	38+3	F	NVD	8	9	No
203	945213	18+2	29	155	165	299	1.3	1.25	1.43	33+1	65	299	306	2182	1.33	1.01	1.41	9.8	138	2.6	3000	38+3	F	NVD	8	9	No
204	236984	18+4	30	151	172	295	1.07	1.35	1.58	33+2	65	302	303	2097	1.31	1.31	2.08	9.9	139	2.5	2800	38+3	M	NVD	8	9	No
205	895600	18+3	25	139	160	277	1.09	1.45	1.43	33	65	287	305	2153	1.32	1	1.42	9.8	140	2.4	2350	37+4	M	LSCS	8	9	No
206	542368	18+2	29	149	172	296	1.3	1.05	1.78	33+1	65	293	310	2196	1.33	1.01	2.07	10.1	121	2.8	2700	38+3	M	LSCS	8	9	No
207	236978	18+3	29	152	174	293	1.32	1.05	1.57	33+1	64	308	302	2000	1.34	0.5	2.04	10.2	126	2.6	3250	38+3	F	NVD	8	9	No
208	700891	18+2	29	152	173	299	1.09	1.35	1.78	33+3	66	304	310	2153	1.32	0.7	2.06	9.8	124	2.9	3250	38+3	F	NVD	8	9	No
209	653258	18+3	29	150	174	300	1.3	1.35	1.88	34+2	64	293	297	2063	1.33	0.5	2.09	9.9	127	2.5	3000	38+3	F	NVD	8	9	No
210	304077	18+2	29	148	165	295	1.32	1.05	1.99	33+1	68	292	316	2142	1.31	0.7	2.07	9.7	124	2.1	2750	37+4	M	LSCS	8	9	No
211	972025	18+3	30	149	172	299	1.09	0.87	1.88	33+1	68	295	297	2062	1.36	0.8	2.09	10.7	128	2	2700	38+3	M	LSCS	8	9	No
212	180250	18+2	30	145	169	295	1.28	0.88	1.99	33+2	67	302	303	2133	1.35	0.8	2.05	10.8	131	3	2700	38+3	M	LSCS	8	9	No
213	102265	18+3	29	154	170	291	1.35	1.84	1.99	33+1	64	298	317	2004	1.37	1	1.92	10.5	137	3.1	2600	38+3	M	LSCS	6	8	Yes
214	242048	18+3	29	147	165	297	1.39	0.99	1.96	33+2	65	294	315	2078	1.35	1.01	1.91	10.6	136	3.1	2850	37+4	M	LSCS	6	8	Yes
215	242015	18+3	29	148	175	292	1.08	0.93	1.94	33+2	65	292	315	2141	1.33	1.31	1.94	10.4	113	1.9	3250	38+4	F	LSCS	6	8	Yes
216	523698	18	31	150	173	296	1.09	0.93	1.96	33	65	308	317	2151	1.31	1	1.95	10.4	114	1.8	2900	37+4	F	NVD	8	9	No
217	820875	19	30	145	166	299	1.35	1.75	1.97	33	67	298	311	2164	1.32	1.01	1.98	10.3	113	1.5	2650	37+4	F	NVD	8	9	No
218	105642	19	30	151	171	291	1.34	0.88	1.87	33	68	304	296	2189	1.33	0.5	1.95	10.6	133	2.2	2800	37+4	M	NVD	6	8	Yes
219	563894	17+4	28	139	166	296	1.09	1.79	1.49	33+2	65	289	311	2051	1.33	0.7	1.45	10.8	113	1.2	2450	37+3	M	LSCS	8	9	No
220	106727	19	26	146	169	299	1.25	0.88	0.87	33	65	305	305	2126	1.34	0.7	1.42	10.8	113	1.2	2250	37+3	M	LSCS	8	9	No
221	542364	18+2	30	147	170	300	1.27	0.89	1.87	33+2	68	295	319	2125	1.31	0.5	1.98	10.4	140	1.1	2950	38+5	M	LSCS	8	9	No
222	120456	18+4	29	146	173	295	1.05	1.76	1.88	33	67	291	315	2143	1.34	0.7	1.99	10.7	115	1.6	2750	37+4	F	NVD	8	9	No
223	367842	18+3	30	145	173	296	1.09	0.93	1.89	33	65	307	298	2055	1.33	0.8	1.93	10.6	114	1.7	2600	37+4	F	NVD	6	8	Yes
224	103254	18+2	29	155	172	295	1.2	0.93	1.99	33+2	68	296	317	2171	1.34	0.8	1.95	10.2	117	1.8	2600	37+4	F	NVD	8	9	No
225	103356	18+3	29	149	175	293	1.25	1.77	1.93	33+2	64	309	308	2056	1.34	0.9	1.99	10.3	118	1.9	3250	38+4	F	LSCS	6	8	Yes
226	104578	18+2	31	147	169	292	1.27	0.88	1.93	33+2	65	308	293	2114	1.35	1	1.94	10.4	119	1.5	2650	37+4	F	NVD	8	9	No
227	110546	18+3	29	155	168	293	1.07	0.99	1.88	33+2	68	293	289	2042	1.35	1.01	1.96	10.5	117	1.4	3250	38+2	M	NVD	8	9	No
228	101964	18+2	25	153	167	299	1.09	0.99	1.38	33+5	68	280	307	2148	1.35	1.31	1.97	10.7	114	1.3	2280	37+2	F	LSCS	8	9	Yes
229	110894	18+3	29	151	172	298	1.39	0.96	2.07	33+2	65	288	289	2159	1.35	1	1.94	9.9	112	1.9	3250	38+4	F	LSCS	6	8	Yes
230	102542	18+2	27	154	166	299	1.2	1.78	1.38	33+1	64	293	313	2083	1.33	1.09	1.48	10.4	118	2.1	2320	37+4	F	LSCS	8	9	No
231	100865	18+3	31	155	172	299	1.37	0.96	2.09	33+4	65	310	291	2153	1.37	0.5	1.93	10.3	116	2	2800	38+2	M	LSCS	6	8	Yes

Sr. No	MRD No	Admission No	Age	Married Since	Occupation	Protein and calories intake	Education	Pre-Pregnancy Weight	Husband Height	Patient Height	PRE BMI	Obstetric Formula Gravida	Parity	Live	Abortion	POG	B.P	Weight	B.M.I	VISIT 2 (POG)	B.P	Weight	B.M.I	SFH VS POG(24 weeks)	SFH VS POG(28 weeks)	Visit 3	B.P	Weight	B.M.I	SFH VS POG(32 weeks)	SFH VS POG(36 weeks)
232	945210	2020002103	31	2	Employed	Adequate	Graduation	59	5"9	167	21.16	2	1	1	-	18+3	110/70	62	22.2	27+2	110/70	67	24.02	Corresponding	Corresponding	33+2	110/70	66	23.5	Corresponding	Corresponding
233	105383	2020003836	27	3	Employed	Adequate	Graduation	55	5"5	168	19.49	2	1	1	-	18+3	100/80	58	20.5	8+2	120/80	63	22.32	Corresponding	Corresponding	32+3	120/80	62	25	Corresponding	Corresponding
234	117524	2020006521	24	3	Unemployed	Adequate	UnderGraduation	53	5"8	157	21.50	2	1	1	-	18+3	120/70	56	22.7	27+2	110/70	61	24.75	Corresponding	Not Corresponding	32+6	120/70	60	23.4	Not Corresponding	Not Corresponding
235	982103	2020002064	29	2	Unemployed	Adequate	UnderGraduation	58	5"5	168	20.55	2	1	1	-	18+2	120/80	61	21.6	27+2	120/80	66	23.38	Corresponding	Corresponding	32+2	120/80	65	26.2	Corresponding	Corresponding
236	236540	2020007474	30	2	Unemployed	Adequate	UnderGraduation	51	5"5	168	18.07	1	-	-	-	18+2	110/70	54	19.1	28+2	120/70	59	20.90	Corresponding	Corresponding	33+2	120/70	58	23.4	Corresponding	Corresponding
237	812456	2020005872	28	2	Unemployed	Adequate	UnderGraduation	54	5"5	168	19.13	1	-	-	-	18+2	120/80	57	20.2	28+2	110/70	62	21.97	Corresponding	Corresponding	32+5	120/80	61	23.5	Corresponding	Corresponding
238	541368	2020004916	25	3	Unemployed	Adequate	UnderGraduation	55	5"8	157	22.31	1	-	-	-	18+3	100/60	58	23.5	27+2	120/60	63	25.56	Corresponding	Corresponding	32+4	110/60	62	23.4	Corresponding	Corresponding
239	988763	2020004589	31	3	Employed	Adequate	UnderGraduation	53	5"8	157	21.50	1	-	-	-	18+3	120/70	56	22.7	27+2	120/80	61	24.75	Corresponding	Corresponding	33+4	120/70	60	23	Corresponding	Corresponding
240	124856	2020002547	26	3	Employed	Adequate	UnderGraduation	57	5"8	157	23.12	2	1	1	-	18+3	110/70	60	24.3	27+2	110/70	65	26.37	Corresponding	Corresponding	32+2	120/70	64	56.2	Not Corresponding	Not Corresponding
241	356874	2020007878	33	3	Employed	Inadequate	UnderGraduation	55	5"9	165	20.20	2	1	1	-	18+3	120/80	58	21.3	27+2	120/80	63	23.14	Corresponding	Corresponding	33+2	120/80	62	22.7	Corresponding	Corresponding
242	124862	2020008542	25	3	Employed	Adequate	Graduation	58	5"8	157	23.53	1	-	-	-	18+3	110/70	60	24.3	27+2	120/80	66	26.78	Corresponding	Corresponding	33+2	120/70	64	25	Corresponding	Corresponding
243	190246	2020004587	30	2	Employed	Adequate	Graduation	59	5"5	168	20.90	2	1	1	-	18+2	120/60	62	22.0	27+2	120/70	67	23.74	Corresponding	Corresponding	33+4	120/70	66	25.6	Corresponding	Corresponding
244	654782	2020004875	25	2	Employed	Adequate	Graduation	53	5"5	168	18.78	2	1	1	-	18+2	120/70	56	19.8	27+2	120/70	61	21.61	Corresponding	Corresponding	32+4	120/70	60	23.4	Corresponding	Corresponding
245	441256	2020007842	29	2	Employed	Adequate	Graduation	51	5"5	168	18.07	2	1	1	-	18+2	120/80	54	19.1	27+2	120/80	59	20.90	Corresponding	Corresponding	32+2	120/80	58	22.7	Corresponding	Corresponding
246	945123	2020007845	33	3	Employed	Adequate	Graduation	50	5"8	157	20.28	2	1	1	-	18+3	110/70	53	21.5	27+2	110/70	58	23.53	Corresponding	Corresponding	33+3	120/70	57	22.6	Corresponding	Not Corresponding
247	254513	2020007485	25	3	Employed	Adequate	Graduation	63	5"6	164	23.42	3	1	1	1	18+3	120/80	66	24.5	28+2	120/80	71	26.40	Corresponding	Corresponding	32+5	110/70	70	27.3	Corresponding	Corresponding
248	845621	2020004589	29	3	Employed	Adequate	Graduation	57	5"8	157	23.12	2	1	1	-	18+3	110/70	60	24.3	28+2	110/70	65	26.37	Corresponding	Corresponding	32+4	120/70	64	25	Corresponding	Corresponding
249	982452	2020004785	25	2	Employed	Adequate	Graduation	58	5"5	168	20.55	2	1	1	-	18+2	100/60	61	21.6	28+2	120/70	66	23.38	Corresponding	Corresponding	32+4	120/60	65	25.4	Corresponding	Corresponding
250	900452	2020007256	32	2	Employed	Adequate	Graduation	52	5"5	168	18.42	2	1	1	-	18+2	110/70	55	19.5	28+2	110/70	60	21.26	Corresponding	Corresponding	33+2	120/70	59	23.1	Corresponding	Corresponding
251	105423	2020006496	26	2	Employed	Adequate	Graduation	58	5"5	168	20.55	2	1	1	-	18+2	110/70	61	21.6	28+2	110/80	66	23.38	Corresponding	Corresponding	32+6	120/70	65	25.5	Corresponding	Corresponding
252	109985	2020003365	30	3	Employed	Adequate	Graduation	63	5"8	162	24.01	2	1	1	-	18+3	110/80	66	25.1	27+2	100/70	71	27.05	Corresponding	Corresponding	33+3	110/80	70	27.6	Corresponding	Corresponding
253	104425	2020007436	25	3	Unemployed	Adequate	UnderGraduation	57	5"8	157	23.12	1	-	-	-	18+3	120/70	60	24.3	28+2	100/70	65	26.37	Corresponding	Corresponding	32+4	120/70	64	25	Corresponding	Corresponding
254	110369	2020004587	29	3	Unemployed	Adequate	UnderGraduation	54	5"8	157	21.91	1	-	-	-	18+3	120/80	57	23.1	28+2	110/70	62	25.15	Corresponding	Corresponding	32+4	120/80	61	23.8	Corresponding	Corresponding
255	210335	2020008563	31	2	Unemployed	Adequate	UnderGraduation	60	5"5	168	21.26	1	-	-	-	18+2	110/70	63	22.3	27+2	120/70	68	24.09	Corresponding	Corresponding	32+4	120/70	67	25.4	Not Corresponding	Not Corresponding
256	102456	2020005598	26	2	Employed	Adequate	Graduation	52	5"5	168	18.42	2	1	1	-	18+2	120/80	55	19.5	27+2	120/70	60	21.26	Corresponding	Corresponding	32+5	120/80	59	23.4	Corresponding	Corresponding
257	105123	2020004587	29	2	Employed	Adequate	Graduation	55	5"8	157	22.31	2	1	1	-	18+2	100/60	58	23.5	27+2	110/70	63	25.56	Corresponding	Corresponding	32+4	110/80	62	23.4	Corresponding	Corresponding
258	109923	2020004536	33	3	Employed	Adequate	Graduation	53	5"8	157	21.50	2	1	1	-	18+3	120/70	56	22.7	27+2	120/60	61	24.75	Corresponding	Corresponding	33+2	120/70	60	23	Corresponding	Corresponding
259	902301	2020004698	25	3	Employed	Inadequate	Graduation	63	5"9	167	22.59	2	1	1	-	18+3	100/70	66	23.7	27+2	120/70	71	25.46	Corresponding	Corresponding	32+4	120/70	70	27.3	Corresponding	Corresponding
260	104587	2020001596	29	3	Employed	Adequate	Graduation	55	5"8	157	22.31	2	1	1	-	18+3	120/80	58	23.5	27+2	120/70	63	25.56	Corresponding	Corresponding	32+1	120/80	62	22.7	Corresponding	Corresponding
261	103658	2020007851	25	2	Employed	Adequate	Graduation	57	5"5	168	20.20	2	1	1	-	18+2	110/70	60	21.3	27+2	120/70	65	23.03	Corresponding	Corresponding	32+5	110/70	64	25	Corresponding	Corresponding
262	154098	2020001489	30	2	Employed	Adequate	Graduation	54	5"5	168	19.13	2	1	1	-	18+2	120/70	57	20.2	27+2	110/80	62	21.97	Corresponding	Corresponding	33+1	120/70	61	24.8	Corresponding	Corresponding
263	105487	2020003366	29	2	Employed	Adequate	Graduation	58	5"8	162	22.10	2	1	1	-	18+2	120/80	60	22.9	28+2	110/70	66	25.15	Corresponding	Corresponding	32+3	120/80	64	25	Corresponding	Corresponding
264	245848	2020001489	33	2	Employed	Adequate	Graduation	52	5"5	168	18.42	1	-	-	-	18+2	120/70	55	19.5	28+2	120/70	60	21.26	Corresponding	Corresponding	33+1	120/70	58	22.7	Corresponding	Corresponding
265	487250	2020001678	28	2	Employed	Adequate	Graduation	56	5"5	168	19.84	1	-	-	-	18+2	110/70	59	20.9	28+2	120/80	64	22.68	Corresponding	Corresponding	32+1	120/70	63	25.4	Corresponding	Corresponding
266	201365	2020001487	25	3	Employed	Adequate	Graduation	63	5"9	165	23.14	3	1	1	1	18+3	110/80	66	24.2	28+2	110/70	71	26.08	Corresponding	Corresponding	32+1	100/70	70	27.6	Corresponding	Corresponding
267	102497	202000487	27	3	Employed	Adequate	Graduation	64	5"6	164	23.80	3	1	1	-	18+3	120/70	67	24.9	27+2	110/80	72	26.77	Corresponding	Corresponding	32+4	120/70	71	25.3	Corresponding	Corresponding
268	107894	2020003547	26	3	Employed	Adequate	Graduation	61	5"9	167	21.87	2	1	1	-	18+3	110/80	64	22.9	27+2	120/80	69	24.74	Corresponding	Corresponding	32+3	120/80	68	26.6	Corresponding	Corresponding
269	102500	2020001458	32	3	Employed	Adequate	Graduation	59	5"8	157	23.94	2	1	1	-	18+3	120/70	62	25.2	27+2	120/70	67	27.18	Corresponding	Corresponding	33+1	120/70	66	25.8	Not Corresponding	Not Corresponding
270	102485	2020001254	27	2	Employed	Adequate	Graduation	52	5"5	168	18.42	2	1	1	-	18+2	120/80	55	19.5	27+2	110/80	60	21.26	Corresponding	Corresponding	32+1	120/80	59	23	Corresponding	Corresponding
271	103650	2020001488	33	2	Employed	Adequate	Graduation	59	5"5	168	20.90	2	1	1	-	18+2	100/80	62	22.0	27+2	120/70	67	23.74	Corresponding	Corresponding	33+1	120/80	66	25.8	Corresponding	Corresponding
272	107894	2020001145	29	2	Employed	Adequate	Graduation	53	5"8	162	20.20	2	1	1	-	18+4	100/70	56	21.3	27+2	110/70	61	23.24	Corresponding	Corresponding	32+1	110/70	60	23.4	Corresponding	Corresponding
273	102542	2020001368	25	2	Employed	Adequate	Graduation	51	5"5	168	18.07	2	1	1	-	18+2	110/70	54	19.1	27+2	100/60	59	20.90	Corresponding	Corresponding	32+1	120/70	58	22.8	Corresponding	Corresponding
274	102458	2020001368	33	2	Employed	Adequate	Graduation	59	5"5	168	20.90	2	1	1	-	18+2	120/80	62	22.0	27+2	120/80	67	23.74	Corresponding	Corresponding	33+1	120/80	66	25.8	Corresponding	Corresponding
275	109984	2020001487	29	3	Employed	Adequate	Graduation	56	5"8	157	22.72	2	1	1	-	18+3	120/70	59	23.9	27+2	110/70	64	25.96	Corresponding	Corresponding	32+5	120/70	63	25.4	Corresponding	Corresponding
276	104785	2020008452	26	3	Employed	Adequate	Graduation	59	5"8	157	23.94	2	1	1	-	18+4	120/70	62	25.2	27+2	110/70	67	27.18	Corresponding	Corresponding	32+4	110/60	66	25.5	Corresponding	Corresponding
277	105746	2020001566	30	3	Employed	Adequate	Graduation	56	5"8	162	21.34	2	1	1	-	18+3	120/60	59	22.5	28+2	110/70	64	24.39	Corresponding	Corresponding	33+1	120/60	63	22.9	Corresponding	Not Corresponding
278	521022	2020001589	28	3	Employed	Adequate	Graduation	62	5"5	168	21.97	1	-	-	-	18+3	100/70	65	23.0	28+2	120/70	70	24.80	Corresponding	Corresponding	32+1	120/70	69	27.5	Corresponding	Corresponding
279	105463	2020002089	25	2	Unemployed	Adequate	UnderGraduation	53	5"5	168	18.78	2	1	1	-	18+2	120/70	56	19.8	28+2	120/80	61	21.61	Corresponding	Corresponding	32+2	120/70	60	24.5	Corresponding	Corresponding
280	106635	2020004459	27	2	Unemployed	Adequate	UnderGraduation	57	5"9	165	20.94	2	1	1	-	18+5	120/70	60	22.0	28+2	120/80	65	23.88	Corresponding	Corresponding	32+4	120/70	64	25	Corresponding	Corresponding
281	103654	2020001457	29	2	Unemployed	Adequate	UnderGraduation	54	5"5	168	19.13	2	1	1	-	18+2	120/80	57	20.2	28+2	120/70	62	21.97	Corresponding	Corresponding	32+1	110/80	61	24.8	Corresponding	Corresponding
282	103698	2020007845	33	3	Employed	Adequate	Graduation	52	5"8	157	21.10	1	-	-	-	18+3	120/70	55	22.3	27+2	110/70	60	24.34	Corresponding	Corresponding	32+4	110/80	59	22.8	Corresponding	Corresponding
283	106352	2020008902	28	3	Employed	Adequate	Graduation	58	5"9	165	21.30	1	-	-	-	18+3	110/70	60	22.0	27+2	110/70	66	24.24	Not Corresponding	Not Corresponding	33+2	120/70	64	23	Not Corresponding	Not Corresponding
284	108752	2020001419	32	2	Employed	Adequate	Graduation	62	5"8	157	25.15	1	-	-	-	18+5	100/60	65	26.4	27+2	120/70	70	28.40	Corresponding	Corresponding	33+1	120/60	69	26.9	Corresponding	Corresponding
285	105436	2020009036	30	2	Employed	Adequate	Graduation	52	5"5	168	18.42	1	-	-	-	18+2	110/60	55	19.5	27+2	120/80	60	21.26	Corresponding	Corresponding	34+2	120/60	59	23	Corresponding	Corresponding
286	109603	2020003650	25	2	Employed	Adequate	Graduation	57	5"5	168	20.20	1	-	-	-	18+2	100/70	60	21.3	28+2	100/80	65	23.03	Corresponding	Corresponding	32+3	110/70	64	25	Corresponding	Corresponding
287	105820	2020008520	28	3	Employed	Adequate	Graduation	59	5"8	157	23.94	2	1	1	-	18+3	120/70	62	25.2	28+2	110/70	67	27.18	Corresponding	Corresponding	34+3	120/70	66	25.8	Corresponding	Corresponding
288	103652	2020005421	30	3	Employed	Adequate	Graduation	58	5"8	157	23.53	2	1	1	-	18+5	120/80	61	24.7	27+2	120/70	66	26.78	Corresponding	Corresponding	33+2	120/80	65	25.4	Corresponding	Corresponding
289	108956	2020007845	25	2	Employed	Inadequate	Graduation	53	5"5	168	18.78	1	-	-	-	18+2	110/70	56	19.8	28+2	120/60	61	21.61	Corresponding	Corresponding	31+2	120/70	60	23.4	Not Corresponding	Not Corresponding
290	103654	2020004521	29	2	Employed	Adequate	Graduation	61	5"8	162	23.24	1	-	-	-	18+2	100/80	64	24.4	28+2	120/70	69	26.29	Corresponding	Corresponding	32+4	120/80	68	26.4	Corresponding	Corresponding
291	205462	2020001378	25	2	Employed	Adequate	Graduation	64	5"9	167	22.95	3	1	1	1	18+2	120/70	67	24.0	28+2	120/80	72	25.82	Corresponding	Corresponding	32+1	110/70	71	27.7	Corresponding	Corresponding
292	975203	2020001587	29	3	Unemployed	Adequate	UnderGraduation	55	5"8	157	22.31	3	1	1	1	18+3	120/80	58	23.5	28+2	120/70	63	25.56	Corresponding	Corresponding	32+1	120/80	62	24.2	Corresponding	Corresponding
293	102785	2020004785	30	3	Employed	Adequate	Graduation	57	5"8	157	23.12	2	1	1	-	18+5	110/70	60	24.3	27+2	120/80	65	26.37	Corresponding	Corresponding	33+4	110/70	64	25	Corresponding	Corresponding
294	109850	2020003650	31	3	Employed	Adequate	Graduation	59	5"8	157	23.94	2	1	1	-	18+3	110/70	62	25.2	28+2	120/80	67	27.18	Corresponding	Corresponding	33+2	120/70	66	25.8	Corresponding	Corresponding
295	103678	2020004578	25	2	Employed	Adequate	Graduation	52	5"5	168	18.42	1	-	-	-	18+2	120/70	55	19.5	28+2	120/80	60	21.26	Corresponding	Corresponding	32+4	120/70	59	23	Corresponding	Corresponding
296	105060	2020008720	29	2	Employed	Adequate	UnderGraduation	57	5"5	168	20.20	2	1	1	-	18+2	120/80	60	21.3	27+2	120/80	65	23.03	Corresponding	Corresponding	32+4	110/80	64	25	Corresponding	Not Corresponding
297	102480	2020000780	30	3	Employed	Inadequate	Graduation	60	5"8	162	22.86	1	-	-	-	18+3	120/80	63	24.0	28+2	120/80	68	25.91	Corresponding	Corresponding	33+2	120/80	67	25.4	Corresponding	Corresponding

Sr. No	MRD No	Second Trimester Ultrasound(POG)	Femur Length (mm)	Abdominal circumference (mm)	Head circumference (mm)	Estimated Fetal Weight(gm)	UMBLICAL ARTERY Pulsatile Index on Second Trimester Scan	UTERINE ARTERY Pulsatile Index On Second Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index On Second Trimester Ultrasound	Third Trimester Ultrasound (POG)	Femur Length (mm)	Abdominal circumference	Head circumference	Estimated Fetal Weight	UMBLICAL ARTERY Pulsatile Index on Third Trimester Ultrasound	UTERINE ARTERY Pulsatile Index On Third Trimester Ultrasound	MIDDLE CEREBRAL ARTERY Pulsatile Index on Third Trimester Ultrasound	HB	RBS	TSH	Weight	POG at delivery	Sex	Mode of delivery	Apgar at 1 min	Apgar at 5 min	NICU admission
232	945210	18+3	30	152	175	300	1.08	0.97	1.58	33+2	65	302	291	2159	1.35	0.7	1.92	10.4	115	2.7	2700	38+2	M	NVD	8	9	No
233	105383	18+3	29	151	172	299	1.32	0.87	1.88	33+4	64	288	294	2148	1.35	0.5	1.91	10.1	112	2.5	2700	38+2	M	NVD	8	9	No
234	117524	18	29	151	173	296	1.24	0.87	1.95	33+2	66	296	291	2046	1.35	0.7	1.99	10.2	122	2.9	3250	38+2	M	NVD	8	9	No
235	982103	19	29	152	172	296	1.25	1.76	2.11	33+2	68	298	292	2199	1.36	1	1.88	9.8	122	2.5	2800	38+2	M	NVD	8	9	No
236	236540	18+3	31	149	172	296	1.35	0.87	2.17	33+2	67	299	290	2090	1.35	1.01	2.01	9.9	111	2.4	2850	37+4	F	LSCS	8	9	No
237	812456	18+2	29	148	173	295	1.39	0.88	2.18	33+2	60	308	290	2107	1.35	1.31	2.04	9.7	123	2.9	3250	38+2	F	NVD	8	9	No
238	541368	18+3	29	152	171	298	1.08	0.89	2.33	33+2	62	288	294	2021	1.37	1	2.05	10.7	128	2.5	3250	38+2	F	NVD	6	8	Yes
239	988763	18+3	30	152	170	298	1.09	0.99	0.93	33+4	62	309	291	2056	1.33	1.01	1.49	10.8	125	2.9	2800	38+2	M	NVD	8	9	No
240	124856	18+3	29	155	174	292	1.35	0.93	0.94	33+2	62	293	288	2152	1.33	0.5	1.48	10.5	124	2.6	2700	38+2	M	NVD	8	9	No
241	356874	18	30	151	172	294	1.34	0.93	1.05	33+2	59	293	290	2005	1.34	0.7	1.49	10.6	129	2.5	2700	38+2	M	NVD	8	9	No
242	124862	19	26	155	168	293	1.09	0.95	1.33	33+2	64	285	303	2074	1.35	1.12	1.43	10.4	133	2.4	2240	37+4	M	LSCS	8	9	No
243	190246	19	30	150	172	297	1.39	1.74	1.44	33+4	59	297	292	2126	1.33	0.5	1.45	10.4	138	2.8	3250	38+4	M	LSCS	8	9	No
244	654782	17+4	31	152	171	295	1.27	0.99	1.13	33+2	60	291	290	2148	1.33	0.7	1.46	10.3	136	2.6	2950	38+4	M	NVD	8	9	No
245	441256	19	29	152	173	294	1.05	0.88	1.44	33+2	59	294	293	2071	1.33	0.8	2.09	10.6	138	2.9	2950	38+4	M	NVD	8	9	No
246	945123	18+2	30	149	174	297	1.09	1.78	2.33	33+3	61	290	292	2107	1.35	0.8	2.07	10.8	135	2.5	3250	38+4	M	NVD	8	9	No
247	254513	18+4	30	152	173	300	1.2	0.99	2.31	33+2	58	298	294	2101	1.33	1	2.09	10.8	139	2.1	2800	37+3	F	LSCS	8	9	No
248	845621	18+3	30	149	166	297	1.25	0.96	2.28	33+4	61	308	294	2119	1.31	1.01	2.05	10.4	132	2	2950	38+4	M	LSCS	8	9	No
249	982452	18+2	31	154	169	300	1.27	1.73	0.86	33+2	59	309	294	2103	1.36	0.95	1.49	10.4	131	3	3250	38+4	M	LSCS	8	9	No
250	900452	18+3	30	155	175	293	1.07	1.45	2.32	33+2	61	308	290	2087	1.33	1	1.94	9.9	135	3.1	3250	38+4	M	LSCS	8	9	No
251	105423	18+2	31	150	165	294	1.09	1.35	2.29	33	58	307	289	2136	1.33	1.01	1.96	9.8	134	2.5	3000	38+4	M	NVD	8	9	No
252	109985	18+3	30	155	169	292	1.39	1.25	2.33	33+3	58	307	293	2081	1.34	0.5	1.97	10.1	133	2.9	3000	38+4	M	NVD	8	9	No
253	104425	18+2	31	145	170	293	1.2	1.75	0.92	33	61	302	291	2011	1.33	0.7	1.94	10.2	137	2.6	3250	38+4	M	NVD	8	9	No
254	110369	18+3	30	150	165	292	1.37	1.45	1.43	33	58	298	292	2058	1.33	0.7	1.49	9.8	134	2.5	3000	38+4	M	NVD	8	9	No
255	210335	18+2	27	151	172	299	1.08	1.33	1.38	33	64	291	299	2025	1.33	0.5	1.43	9.9	138	2.4	2250	37+3	M	LSCS	8	9	No
256	102456	18+3	29	146	175	292	1.32	1.11	0.93	33	60	308	289	2022	1.33	1	1.49	9.7	139	2.8	3250	38+4	M	LSCS	8	9	No
257	105123	18+3	29	145	170	298	1.24	1.76	1.82	33+2	62	305	291	2149	1.35	1.01	1.91	10.7	140	2.6	3000	38+4	M	NVD	8	9	No
258	109923	18+3	31	147	173	292	1.25	1.11	1.58	33+2	58	300	293	2199	1.33	1.31	1.99	10.8	121	2.9	3000	38+4	M	NVD	8	9	No
259	902301	18+2	29	154	175	296	1.28	1.11	1.78	33+1	59	300	290	1729	1.33	1	1.88	10.5	126	2.5	3250	38+4	M	NVD	8	9	No
260	104587	18+3	29	146	169	298	1.44	0.89	1.57	33+1	62	272	290	1765	1.36	1.01	2.01	10.6	124	2.1	2600	37+3	F	LSCS	8	9	No
261	103658	18+2	31	148	170	296	1.42	1.77	1.78	33+1	62	276	290	1747	1.33	0.5	2.04	10.4	127	2	3000	38+4	M	LSCS	8	9	No
262	154098	18+3	29	153	166	299	1.43	1.76	1.88	33+1	59	271	292	1805	1.34	0.7	2.05	10.4	124	3	3250	38+4	M	LSCS	8	9	No
263	105487	18+2	31	149	169	292	1.45	0.93	1.99	33+1	60	272	288	1814	1.33	0.7	2.01	10.3	128	3.1	3250	38+4	M	LSCS	8	9	No
264	245848	18+3	29	146	175	295	1.44	1.75	1.88	33+1	60	273	293	1820	1.33	1.08	2.08	10.6	131	3.1	3000	38+4	M	LSCS	8	9	No
265	487250	18+3	30	155	165	297	1.41	0.88	1.99	33+1	61	275	294	1779	1.33	0.7	2.09	10.8	137	1.9	3250	38+4	F	LSCS	8	9	No
266	201365	18+3	29	152	166	297	1.46	0.99	1.99	33+1	59	275	293	1738	1.34	1.1	2.07	10.8	136	1.8	3250	38+4	F	NVD	8	9	No
267	102497	18	30	149	169	291	1.41	0.88	1.96	33+2	60	275	290	1711	1.34	0.8	2.04	10.4	113	1.5	2700	37+3	M	NVD	8	9	No
268	107894	19	30	154	170	296	1.42	0.99	1.94	33+2	59	272	289	1739	1.34	0.9	2.06	10.7	114	2.2	3000	38+4	M	LSCS	8	9	No
269	102500	19	30	155	165	294	1.42	0.99	1.97	33+1	58	274	293	1809	1.31	1	2.09	10.6	113	1.2	2650	37+2	M	LSCS	8	9	No
270	102485	17+4	28	146	168	296	1.09	1.76	1.49	33	68	293	308	2104	1.34	1.12	1.47	10.2	133	1.2	2310	37+2	F	LSCS	8	9	No
271	103650	19	29	151	169	298	1.42	1.05	1.87	33+1	60	273	294	1741	1.34	0.85	2.09	10.3	113	1.1	3250	38+5	F	LSCS	8	9	No
272	107894	18+2	29	148	171	291	1.43	1.45	1.87	33+2	58	270	290	1793	1.33	1	2.05	10.4	113	1.6	2700	37+3	F	NVD	8	9	No
273	102542	18+4	31	154	168	293	1.44	1.35	1.87	33+1	59	274	288	1777	1.34	1.01	1.95	10.5	140	1.7	2700	37+3	F	NVD	8	9	No
274	102458	18+3	29	147	174	300	1.44	1.25	1.87	33+1	61	272	291	1735	1.32	0.5	1.95	10.4	133	1.8	3250	38+4	F	NVD	8	9	No
275	109984	18+2	29	148	170	299	1.45	1.23	1.89	33+1	58	275	288	1770	1.34	0.7	1.90	10.1	138	1.9	3250	38+4	F	LSCS	8	9	No
276	104785	18+3	26	150	172	293	1.02	1.77	1.49	33	65	303	303	2153	1.34	0.5	1.48	10.2	136	1.5	2250	37+3	M	NVD	8	9	No
277	105746	18+2	30	155	170	298	1.44	1.73	1.93	33+1	62	275	294	1777	1.35	1.12	1.99	9.8	138	1.4	3250	38+2	M	NVD	8	9	No
278	521022	18+3	25	145	171	294	1.05	1.79	1.38	33	64	295	302	2200	1.33	1.2	1.43	9.9	135	1.3	2225	37+3	F	LSCS	8	9	No
279	105463	18+2	29	153	167	299	1.42	0.99	1.93	33	62	270	290	1812	1.31	0.8	1.95	9.7	139	1.9	3300	38+4	F	LSCS	8	9	No
280	106635	18+3	29	146	169	300	1.44	1.72	1.95	33	62	275	289	1796	1.34	1.14	1.99	10.7	132	2.1	2600	37+3	F	LSCS	8	9	No
281	103654	18+2	31	155	170	298	1.41	0.94	1.88	33	58	270	291	1717	1.34	1.01	1.94	10.8	131	2	3000	38+4	F	LSCS	8	9	No
282	103698	18+3	29	150	175	295	1.44	0.96	2.06	33	60	274	293	1777	1.31	1.31	1.96	10.5	135	2.7	3000	38+4	F	LSCS	8	9	No
283	106352	18+3	30	148	175	298	1.4	0.97	2.07	33+2	60	277	288	1810	1.34	1	1.97	10.6	134	2.5	3300	38+4	F	NVD	8	9	No
284	108752	18+3	29	149	165	293	1.44	1.75	2.09	33+1	58	271	290	1709	1.33	1.01	1.94	10.4	133	2.9	3300	38+4	M	NVD	8	9	No
285	105436	18+2	31	149	167	295	1.44	0.87	1.88	34+2	59	270	292	1721	1.34	0.5	1.95	10.4	137	2.5	3300	38+4	M	NVD	8	9	No
286	109603	18+3	27	155	168	299	1.09	1.87	1.38	33	64	289	312	2155	1.41	0.7	1.45	10.3	134	2.4	2250	37+3	M	LSCS	8	9	Yes
287	105820	18+2	31	147	173	297	1.41	0.87	1.95	34+3	58	271	288	1750	1.35	0.7	1.90	10.6	138	2.9	3300	38+4	M	NVD	8	9	No
288	103652	18+3	29	152	173	291	1.44	0.88	2.11	33+2	60	273	292	1744	1.34	1.04	1.98	10.8	139	2.5	3000	38+4	M	NVD	8	9	No
289	108956	18+2	29	151	166	299	1.45	0.89	2.17	33	58	270	289	1798	1.34	1.07	1.99	10.8	140	2.9	3000	38+4	F	NVD	8	9	No
290	103654	18+3	31	151	174	291	1.41	1.76	2.18	33	62	271	292	1809	1.36	0.8	1.93	10.4	121	2.6	3000	38+4	F	NVD	8	9	No
291	205462	18+3	29	147	175	291	1.44	0.93	0.93	33	60	273	289	1721	1.34	1.07	1.45	10.4	126	2.5	3000	38+4	F	NVD	8	9	No
292	975203	19	26	152	172	300	1.25	0.93	1.43	33+1	65	306	315	2081	1.4	0.9	1.99	10.7	124	2.4	2250	37+3	F	LSCS	8	9	Yes
293	102785	17+4	31	155	166	292	1.41	0.95	0.94	33+4	59	274	290	1722	1.34	1.2	1.94	10.6	127	2.8	3000	38+4	F	LSCS	8	9	No
294	109850	19	31	147	166	299	1.44	0.88	2.33	33+2	59	277	291	1701	1.33	1.01	1.96	10.2	124	2.6	3000	38+4	F	NVD	8	9	No
295	103678	18+2	29	154	175	295	1.43	0.99	1.05	33+1	59	272	288	1743	1.33	0.94	1.47	10.3	128	2.9	3000	38+4	F	NVD	8	9	No
296	105060	18+4	30	152	170	297	1.44	0.88	1.44	33+1	61	272	292	1815	1.31	1	1.44	10.4	131	2.5	3000	38+4	F	NVD	8	9	No
297	102480	18+3	29	150	168	277	1.41	1.75	1.94	33+2	62	277	292	1777	1.35	1.01	1.98	10.5	132	2.1	2700	37+3	F	LSCS	6	8	Yes

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Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 22.01.2021 has approved the plan of thesis of **Dr. Gourav Janweja**, a student of your college for **MD Obstetrics & Gynaecology** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

To study parameters to predict small for gestational age infant in low risk pregnant women

Supervisor
Dr. Kanupriya Jain
Assoc. Prof.,
Dept. of Obst. & Gynae.,
DMCH, Ludhiana.

Co-Supervisor
Dr. Ashima Taneja
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The student has to submit the three copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

S P Singh
Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

1. ***If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.***
2. *The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED IN

PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MD

In

OBSTETRICS & GYNAECOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

NOVEMBER, 2019

DR. GOURAV JANWEJA

DEPARTMENT OF OBSTETRICS & GYNAECOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN
For the degree of	MD (OBSTETRICS & GYNAECOLOGY)
Name of the candidate	Dr. Gourav Janweja
Supervisor	Dr. Kanupriya Jain, Associate Professor, Department of Obstetrics & Gynaecology, DMCH, Ludhiana
Co-supervisor(s)	Dr. Ashima Taneja, Professor & Head of Department of Obstetrics & Gynaecology, DMCH, Ludhiana Dr. Kamini Gupta, Professor, Department of Radio-diagnosis, DMCH, Ludhiana
Institution	Dayanand Medical College and Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Approximately 40% of non-anomalous singleton stillbirths are small for gestational age (SGA) and live born SGA infants have increased risk of long-term adverse outcomes. Placental insufficiency is a major contributor to the pathophysiology in SGA pregnancies. A limitation of antenatal care is that the majority of SGA pregnancies are not identified before birth. SGA infants recognized before birth and delivered in a timely fashion have a four-fold reduction in composite severe morbidity/ mortality. Reliable early pregnancy risk prediction, therefore has potential to reduce morbidity and mortality

Aims & Objectives: • To study the prevalence of SGA infants in low risk singleton pregnancy.

• To correlate clinical variables and ultrasound parameters at 20+/-2 weeks with the possibility of birth of SGA infants.

Material & Methods: A time bound prospective observational study of low risk pregnant women undergoing regular antenatal checkup in the department of Obstetrics and Gynaecology and ultrasound in Radiodiagnosis at Dayanand Medical College and Hospital.

Clinical Significance: Being born small for gestational age predisposes to many metabolic and pubertal disorders. Special emphasis is needed for early detection and management through early surveillance in growth clinics, and regular follow-up to prevent associated comorbidities. A review found that effective interventions are available for reducing the occurrence of SGA fetuses and preventing related perinatal mortality.

Keywords: small for gestational age, ultrasonography, clinical factors.

(Signature)	(Signature)	(Signature)	(Signature)	(Signature)
Candidate	Co-supervisor	Co-supervisor	Supervisor	Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN"** exist in the Department of Gynaecology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

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Date : _____

APPROVAL PROFORMA
BY
RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Gourav Janweja
Department	Obstetrics & Gynaecology
Topic of Thesis	TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN
Likely date of appearing in PG examination	June 2022
Date of enrollment	17th May, 2019
Name of Head of Department	Dr. Ashima Taneja
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Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Jaspal Singh (Professor & Head, Surgery)	Mr. A K Jindal (Member, Ethics Committee)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Assistant Dean Academics)	Dr. Deepinder K Chhina (Professor & Head, Microbiology)
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Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / ~~No~~

Dr. Sandeep Puri
Chairperson
Research Committee

Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
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Ethics Committee

Chairperson
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PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

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2	NAME OF THE INSTITUTE	Dayanand Medical College and Hospital, Ludhiana
3	COURSE OF STUDY AND SUBJECT	MD, Obstetrics & Gynaecology
4	DATE OF ADMISSION OF COURSE	17-05-2019
5	TITLE OF THE TOPIC	TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

A limitation of antenatal care is that the majority of SGA pregnancies are not identified before birth.[1-3] Prenatal care is important in all pregnancies, and especially to identify problems with fetal growth. SGA infants recognized before birth and delivered in a timely fashion have a four-fold reduction in composite severe morbidity/ mortality.[4]

Further, adverse events in the neonatal period, e.g. respiratory complications,

hypotension, hypoglycaemia and necrotizing enterocolitis, are more frequently occurring in children born SGA than AGA.[5] Even with the increased complication rate after SGA birth, the risk of adverse neonatal outcome is reduced if SGA status is known before delivery.[6,7]

Risk for complications in early pregnancies is assessed by risk factors, e.g. maternal characteristics, medical and family history. Screening for SGA fetuses in a low-risk population is traditionally performed by serial measurements of the symphysis-fundus distance from gestational week 25 and onwards. If serial measurements of symphysis-fundus distance are performed in a standardized manner, the sensitivity for detecting SGA with a cut-off at - 2 SD is approximately 30-50% in term pregnancies.[8] Despite the rather low detection rate, symphysis-fundus measurements can be performed in all pregnant women at a low cost. Royal College of Obstetricians and Gynaecologists (RCOG) thereby recommended symphysis-fundus distance as primary screening in a low-risk population.[9] Women with a major (odds ratio (OR) >2) risk factor for SGA birth, such as previous SGA infant, previous stillbirth or chronic hypertension, should be offered more thorough screening for SGA fetuses, according to the Green-top Guideline no. 31 from RCOG.[9] Serial ultrasound measurements of estimated fetal weight or abdominal circumference and umbilical artery Doppler are recommended for women with at least one major risk factor. Women with three or more minor risk factors, such as age >35 years, smoking and in vitro fertilization, are instead recommended screening with

uterine artery Doppler in gestational week 20-24. Serial ultrasound scans should subsequently be offered women with pathologic Doppler scan. Doppler assessment have been evaluated for early detection of high SGA risk in a low-risk population.[9] Moreover, second-trimester screening with fetal biometry, uterine artery Doppler and biochemical markers can be used for detecting pregnancies with high risk of SGA birth.[10] Using this algorithm, high-risk pregnancies can be followed by third-trimester ultrasound scans in order to detect a large proportion of the pregnancies complicated by restricted fetal growth, especially those in need of preterm delivery. Besides the increased perinatal mortality and morbidity, long-term health issues are more common in children born SGA. Children born preterm are more often SGA than children born in term pregnancy.[11,12] Even in the absence of severe perinatal complications, infants born preterm and SGA usually spend a considerable share of their early life, between birth and the time they were expected to be born, hospitalized. Instead of continuous nutrient supply and rapid intrauterine growth, the preterm infant is subjected to a variety of factors with potentially adverse impact on metabolism and vascular health. Therefore, it is of uttermost importance to evaluate health consequences in children born SGA after preterm and term pregnancies. Reliable early pregnancy risk prediction, therefore has potential to reduce morbidity and mortality.

6.2 REVIEW OF LITERATURE

In 2012, Naro generated nomograms demonstrating an increase in umbilical cord diameter up to 32weeks of gestation followed by a plateau towards end of pregnancy due to reduction in the water content of wharton's jelly. Moreover, a significant relationship between umbilical cord diameter, cross sectional area and fetal anthropometric measurements.[13]

N. Shwartz, E. Wang, S. Parry (November 2012) studied 1909 singleton pregnancies. Mean placentaldiameter (SGA<10, P<0.001; SGA<5, P=0.002) and thickness (SGA<10, P<0.006; SGA<5,P=0.065) were significantly smaller in SGA pregnancies. 2D placental measurements taken in midgestation are significantly associated with the incidence of SGA.[14]

Uysal et al in a study To analyze the maternal and perinatal characteristics of small-for-gestational-age (SGA) newborns compared with appropriate-for gestational-age (AGA) newborns in single ton pregnancies concluded that The association of SGA with ICSI pregnancies, hypertensive disorders, oligohydramnios, preterm delivery, congenital/chromosomal anomalies, NICU admission and perinatal mortality may be important in perinatal care. Clinical suspicion of SGA necessitates appropriate monitorization and management. Although obstetric outcomes were not significantly different between the two SGA subgroups with abnormal and normal Doppler findings in this study, this finding must be evaluated with caution due to the small sizes.[15-17]

Yadav et al in a study on growth and developmental issues of small for gestational age babies concluded Being born small for gestational age predisposes to many metabolic and pubertal disorders. Special emphasis is needed for early detection and management through early surveillance in growth clinics, and regular follow-up to prevent associated comorbidities.[18-20]

Nam et al concluded that increased long-term risks of adiposity, especially truncal adiposity, were demonstrated in children born SGA. Both genetic and environmental factors affect fetal growth. A decrease

in insulin sensitivity and disturbances in the growth hormone-insulin-like growth factor axis are considered important results of a detrimental fetal environment. Despite the uncertain mechanisms, postnatal catch-up growth and rapid weight gain were the strongest additional factors influencing the insulin levels. By understanding the epidemiology and general risks of obesity in SGA, the future risk of insulin resistance can be prevented by trying to achieve a balance between the adverse pre- and postnatal environmental factors.[21-23]

Ciaubano et al evaluated the performance of ultrasonographic estimated fetal weight (EFW) at 35 + 0 to 36 + 6 weeks' gestation in the prediction of delivery of a small-for-gestational-age (SGA) neonate and assess the additive value of, first, maternal risk factors and, second, fetal growth velocity between

20 and 36 weeks' gestation in weeks' gestation and use of the 10 the percentile as the cut-off improving such prediction and concluded Screening for SGA neonates by EFW at 35 + 0 to 36 + 6 predicts 63% of affected neonates. Prediction of 90% of SGA neonates necessitates classification of about 35% of the population as being screen positive. The predictive performance of EFW is not improved by addition of estimated growth velocity between the second and third trimesters of pregnancy.

Morris et al in their systematic review of 31 observational studies reported that MCA Doppler had limited predictive accuracy for adverse perinatal outcome (LR+ 2.79, 95% CI 1.10–1.67; LR – 0.56, 95% CI 0.43–0.72) and perinatal mortality (LR+ 1.36, 95% CI 1.10–1.67; LR – 0.51, 95% CI 0.29–0.89).[24]

6.3 AIMS AND OBJECTIVES OF THE STUDY

- To study the prevalence of SGA infants in low risk singleton pregnancy.
- To correlate clinical variables and ultrasound parameters at 20+/-2 weeks with the possibility of SGA infants

7. MATERIALS AND METHODS

We will recruit healthy low risk pregnant women at 15 weeks and their clinical parameters noted and on 2nd visit at 20+/-2 weeks foetal biometry and ultrasound Doppler parameters noted and follow up till delivery and note down the outcome of baby regards for birth weight.

7.1 Source of Data

A time bound prospective observational study of low risk pregnant women undergoing ultrasound in the department of Obstetrics and Gynaecology, and Radiodiagnosis at Dayanand Medical College and Hospital

7.2 METHOD OF COLLECTION OF DATA

We will recruit healthy low risk pregnant women at 15 weeks and their clinical parameters noted and on 2nd visit at 20+/-2 weeks foetal biometry and ultrasound Doppler parameters noted and follow up till delivery and note down the outcome of baby regards for birth weight and NICU Requirement.

INCLUSION CRITERIA

- All low risk pregnant women with singleton pregnancy.

EXCLUSION CRITERIA-

Exclusion criteria included

- An elevated risk of preeclampsia, small for gestational age(SGA) or spontaneous preterm birth due to underlying medical conditions (known chronic hypertension, and/or pre-existing diabetes, renal disease, systemic lupus erythematosus, or anti-phospholipid syndrome), previous cervical knife cone biopsy, 3 terminations or 3 miscarriages or current ruptured membranes
- known major fetal anomaly or abnormal karyotype or
- interventions (such as low dose aspirin) that might modify pregnancy outcome

OUTCOME: Early prediction of SGA through clinical parameters and ultrasound variables and prevalence of SGA

STATISTICAL ANALYSIS

Data will be described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate.. All statistical calculations will be done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

1.Routine Ultrasound at 20+/-2 weeks of POG

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Attached herewith

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PROFORMA

Patient's Name: MRD No: Admission No:

Age: Married Since: Phone No:

Pre- Pregnancy Weight: Husband Height: Patient Height:

LMP: EDD:

Obstetric Formula: **G P L A** POG:

Material Substance Abuse: Alcohol- Yes/No Cigarette- Yes/No

Medical History of chronic Hypertension: Y/N Medical History of Diabetes Mellitus: Y /N

Previous Pregnancy with Pre-Eclampsia: - Yes/ No

Neonatal Birth of Previous Pregnancy:

- 2.5 - 3 kg

- 2 - 2.5 kg

- 1.5 - 2 kg

- 1 - 1.5 kg

Clinical parameters:

POG					
B.P					
Weight					
B.M.I					
Fundal height					
Any drug intake					

Supervisor signature

Candidate signature

Ultrasound parameters:

POG	Femur Length	Abdominal circumference corresponding to POG	Head circumference corresponding to POG	Estimated Fetal Weight

	UMBLICAL ARTERY			UTERINE ARTERY			MIDDLE CEREBRAL ARTERY		
POG									
S/D Ratio									
Resistance index									
Pulsatile index									

•Investigations:

HB- RBS- TSH-

•Delivery Details:

Date of delivery		Weight	
POG at delivery		Sex	
Mode of delivery	NVD/LSCS	Cry	
Outcome			

•Resuscitation Details _____

•Baby shifted to. _____

•Stay_____

•Date of discharge _____

Supervisor signature **Candidate signature**

INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o..... .....am willing to participate in the study **"TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

....

Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

"TO STUDY PARAMETERS TO PREDICT SMALL FOR GESTATIONAL AGE INFANT IN LOW RISK PREGNANT WOMEN" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ